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ABSTRACT

This guide to making photography accessible to persons with exceptional educational needs contains several papers, a list of 27 organizational and bibliographic resources, a list of sources of adaptive equipment, and drawings of sample equipment modifications. Nine papers make up the text of the guide. In "An Adventure into Photography," Charles Peterson describes his photography work with disabled individuals and notes that the use of simple adaptations can bring photography within reach of all. "Photography and the Arts for Special Children's Program" (Eddee Daniel) discusses program goals, equipment, activities, and results from working with children with different disabilities. "Learning Experiences with Photography and Mentally Retarded Youth" (Sandy Siebens) presents two lesson plans on textures and emotions. "Focus on Photography: Donald Levine" (Susan Gagnon) and "Photographing to See: George Covington" (Mark Peterson) describe the work of a professional photographer with paraplegia and another who is legally blind. "Let Your Camera Do the Seeing" (George Covington) discusses camera functions and subject matter for legally blind individuals. "Project SNAP (Special Needs Adapted Photography)" (Vera Scalingi) describes Polaroid's efforts to make its products and services accessible to disabled persons. "Access to the Darkroom" (Mark Peterson) explores adaptation of darkroom processes to the needs of disabled individuals. "Special Applications of Photography: Skills Development" (Scalingi) addresses photography's uses as a learning and therapeutic tool. (JDD)

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Access to Photography:

Making Photography Accessible to Persons with Exceptional Educational Needs

Produced by the
Young Artist Workshops
St. Norbert College
De Pere, WI 54115-2099

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Preface and Acknowledgements

The Young Artist Workshops are a three-week summer program designed for young artists (ages 7-22) who have learning disabilities, physical handicaps, communication disorders, or mental retardation. The program's purpose is to allow young people with special needs to experience the arts. Photography and other visual arts, dance, creative movement and physical activities, theater, music, storytelling, and creative writing comprise the curriculum. The participants experience the various arts through exploring art materials, acting, singing, writing, speaking, listening, and seeing.

The program's philosophy is that involvement in the arts should not be limited to individuals unimpaired by physical or mental disorders. The participants develop more than spectator skills with the arts; through active participation in the various arts, the participants receive hands-on experiences.

The Young Artist Workshops: Arts for Special Needs Children Programs at St. Norbert College are funded, in part, by the National Endowment for the Arts, Arts in Education Program. Arts for Special children began in 1985 with 20 youth ages seven to 14 with orthopedic and/or communication disorders. The program expanded in 1986 to include mentally retarded teens and young adults between the ages of 12 and 22. The workshops in 1987 also offered arts enrichment experiences to 7 to 15-year-old students with learning disabilities.

About one-fourth of the 65 young people enrolled in the 1987 special arts workshops used wheelchairs or walkers, or were equipped with orthopedic devices. Hearing impaired, nonverbal, mentally retarded, and learning disabled were other disabling conditions of the participants.

The group of students who had learning disabilities also had limited communication skills either verbally, in written form, or both, due to dislexia, memory difficulties or poor organization skills. The students who were physically handicapped had various difficulties: ambulatory with a walker or cane and normal speech, muscular distrophy which made speech difficult, and cerebral palsy with augmentative communication systems.

The Young Artist Workshops are an art and education program of St. Norbert College, De Pere, WI 54115. They provide visual and performing arts programs for young people with exceptional educational needs. The workshops are a demonstration site project providing an integrated arts program and an opportunity for teachers to develop skills for enriching the curriculum with the visual and performing arts.

This guide is an extension of the 1987-88 Young Artist Workshops; it documents exploration from the workshops as well as provides sources and samplings of information from a variety of other programs.

The 1987-88 photography project, including this publication, would not have been possible without the generous support of the St. Norbert College community, the National Endowment for the Arts Artists in Education Program, Eastman Kodak, and the Polaroid Corporation.

We hope the essays, the bibliography, lists of adaptive equipment and sources, ways which equipment could be easily modified, examples of student work, and suggestions to teachers, recreation program staff, parents, and persons with disabilities contained herein will indeed increase *access to photography*.

Editor's Note

When developing the necessary adaptations to permit a physically challenged person to work with photography equipment it is suggested that this guide provide a point of departure and the individual, care-provider, or teacher who is working with the individual engage in dialogue with appropriate support personnel. These appropriate support personnel would include persons who may also work with that individual in a school or human service agency. These include, a) an occupational therapist, b) physical therapist, c) therapeutic recreation specialist, or d) rehabilitation engineering support person. These individuals all have special expertise in making adaptations to accommodate the capabilities of a person who is physically challenged. They may be able to recommend simple commercially available items in the community or the services of a person in the rehabilitation center or similar program that might be able to fabricate the necessary device. In a public school setting, the woodshop or industrial arts teacher and an enterprising student or two might be able to quite easily fabricate the necessary clamping, holding or positioning device.

By inviting input from persons such as the occupational therapist or the physical therapist that works with that person on perhaps a weekly or monthly basis, you may gain insight regarding the individual's unique capabilities and limitations. This should be very helpful in "solving" a new positioning, placement, or mounting problem.

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Chapter 1

St. Norbert art and education professor Charles Peterson is the YOUNG ARTIST WORKSHOPS (YAW) Program's founder and director.

Peterson and the Program's teaching staff have presented workshops for teachers and other interested groups throughout the United States. Presentations about the Program have also been made at state and national art education association meetings, including the National Art Education Association conventions in New Orleans, Boston, and most recently at Los Angeles in April, 1988.

Recently appointed to a Wisconsin Department of Public Instruction Task Force, Peterson is helping prepare a curriculum guide for visual and performing arts for children with exceptional educational needs.

An Adventure into Photography

by Charles Peterson

"There go my people. I must hurry and catch up to them, for I am their leader." these words, attributed to Mahatma Ghandi, revered former leader of India, are indeed relevant to us today as artists, educators, photographers, and collectively as people concerned with the quality of life for persons who are disabled.

For the adult who never quite learned to type, the specter of the computer may indeed be overwhelming. It is easy to feel threatened by technology when our life experience to this point has been one of being dictated to by technology rather than being in control of it.

It is easy to impose our own limitations on others, who indeed may not have those similar limitations. An individual who is physically challenged might have limited or no use of the extremities, minimal use of the head, may require total care, but yet have a brilliant, highly imaginative mind with both the intellect and the will to communicate with a non-disabled world.

Whereas a scant generation ago computer communication consisted of a console that would have looked more in place at Cape Canaveral in Ground Control, now it has been shrunk to the size of a small shoe box and rides on a power wheelchair with a 7-year-old child. Modified keyboards, expanded keyboards, light-activated keyboards, or even eye-activated keyboards provide a vital link enabling the disabled person to access communication and the arts. Indeed, we need to be open to technological change and seize the unique opportunities it offers when suitably adapted to help a person who is disabled to become involved in the arts.

Danny shares a communications board and camera with non-disabled friends.

For the person with orthopedic handicaps or communication disorders, photography can offer new freedom and the capability of expressing one's inner feelings without words or a great deal of physical dexterity. Although many barriers exist which can make the person with exceptional educational needs feel frustrated, photography offers the opportunity for these persons to feel free and be successful.

Jed uses a wheelchair mounted and electrically operated Polaroid camera.

Recent advances in photographic technology make photography as easy as pointing and pushing a button. Automatic cameras are now available at affordable prices. This new generation of cameras focuses and advances automatically, doesn't require threading and crank-rewinding of film, adjusts to changing light levels for automatic exposure, and even activates the built-in electronic flash when needed.

All that are needed are ways to stabilize and point the camera, and then an easy way to activate the shutter release. Many possible ways of accomplishing this are discussed in this text and are documented in a listing of available devices or are shown and described in an appendix of modifications you can easily make yourself.

The *Access to Photography* manual is, in fact, itself an adaptation. It reflects and documents some of the explorations undertaken, and discoveries made, by the participants and staff of the YOUNG ARTIST WORKSHOPS program. It also attempts to group together some of the precious few resources discovered in searches for more information about photography by persons with exceptional educational needs. Hopefully, it will help stimulate additional thought, lead to further resources, and indeed improve access to photography.

Photography has the power to become many things to many people. In the beginning of a life-long adventure in photography that began some 45 years ago, before I was 10, I began using a camera to record events, people, and places that seemed important to me at the time. I later began to record impressions of events, people, and places; still later, as I learned *from* my camera and *with* my camera, I began to interpret what "*we*" were seeing.

At still another point in "*our*" journey through photography, the focus shifted to the capability of the photograph to symbolize aspects of reality, or to develop what noted American photographer Alfred Sieglitz called "photographic equivalents." Later, the photograph became for me a means for transferring or transforming ideas and images through encounters with technology (i.e., photo-etching, thermal imaging, digital camera and computer reproduction, computer graphics tablets, etc.) into other artistic media. Photography has, indeed, the capacity to serve many people in a variety of ways. As an art educator, photographer, educator of arts specialists in an adaptive education program, and director of a visual and performing arts program for youth with

Lead Teacher Siebens and students discuss a photo exhibition.

exceptional educational needs, I found these diverse professional interest converging as the *Access to Photography Project* evolved.

As I continued my work with persons who are disabled, I became more aware of augmentative communication systems (including touch or light activated computer systems) and their function in the life of the person who has a communication disorder. During dialogue with occupational and physical therapists regarding physical adaptations for persons who had physical limitation as well, I became more aware of the power of photography as an augmentative or alternative form of communication if suitable physical adaptations were made.

Photography has the unique capacity for sharing ideas, information, and dreams that can sometimes best, or perhaps only, be shared visually. For the person who is physically challenged, who has a communication disorder, or even who has a visual impairment, the use of relatively simple adaptations can bring photography in its more direct forms such as the instant photograph within reach of all. The chapters in this book are dedicated to that goal.

Indeed, if physical adaptations are made and requisite dexterity can be developed, the person who has a physical disability can easily enter the magic world of black and white or color photography – even the darkroom aspects are achievable. In a later chapter Mark Peterson discusses darkroom adaptations.

Video provides an immediate imaging capability.

The YOUNG ARTIST WORKSHOPS began as an experiment in 1985 with an arts program for children with orthopedic and communication disorders and has expanded each year since then. The Program is funded, in part, by the National Endowment for the Arts, and gifts from foundations, civic groups, and individual donors.

The concept of providing experiences and opportunities in the arts to children with exceptional needs was a unique notion, even among many educators.

As a parent raising children with disabilities, as an artist, and as an educator, I was frustrated by the limited opportunities available in the arts for these special children. I wanted to open up new dimensions and possibilities for many young people and, in so doing, enhance the quality of life for this special population.

Among the original program goals were (a) recognizing the achievements of young arts who were disabled and (b) demonstrating the capabilities of disabled persons to participate in the visual and performing arts.

Now entering its fifth year, the YOUNG ARTIST WORKSHOPS offers experiences in visual arts, dance, creative movement, photography, music, theatre, and arts appreciation to young people ages seven to 22 with developmental disabilities.

Coordinating a summer YAW, Educator's Workshops, Mini-Workshops, research, publication, and dissemination activities as well as providing general program support was the challenge for the administrative staff.

Four qualified lead teachers headed a support staff of about 30 employees. Among them were an interpreter for the hearing impaired, art and music therapists, art and music teachers, and teachers specializing in theatre, photography, dance and creative movement, and creative writing.

Looking backward, most of the staff and volunteers that helped inaugurate a small arts program for 20 children in 1985 are still in the program. Their enthusiasm, dedication to *our* exceptional students, and loyalty to *our* YOUNG ARTIST WORKSHOPS Project is commendable. Each year seven or eight new staff members have been added to the ST. NORBERT COLLEGE "Special Arts Community" and we continue to grow as educators as we work with each other and with our young exceptional artists.

Also present are some of the young artists with disabilities that began an adventure in the arts four years ago. What a joy it is to see their growth in self-confidence, maturity, and excitement as they continue to grow in their ability to express themselves through the arts. Their lack of speech, hearing, use of the hands, or ability to move is certainly no barrier to enjoying the arts as active spectators and participants when appropriate adaptations are made.

Our fourth and most successful year, 1988, provided many opportunities for outreach and program dissemination of specific program components that were funded under the National Endowment for the Arts Grant which includes the Access to Photography Program. We completed the production of several audiovisual and printed resources for arts educators, and the work continues on three other projects: this *Access to Photography* publication, a resource guide entitled "Music and the Exceptional Needs Child," and a video-tape for college art education programs, "Access to the Visual Arts," which focuses upon ways of adapting environment and attitudes to make the visual arts accessible to a physically challenged person.

Participation in the visual and performing arts can significantly contribute to real personal growth and enhanced self-concept for the learning disabled child. Experiences in visual and performing arts can assist the child in deriving greater meaning from looking, listening, touching, or moving experiences. They help the child to integrate information from many different senses, and to develop memory in terms of what has been seen, heard, felt, or experienced. In addition, arts experiences may enable the learning disabled child to increase his/her ability to make visual judgements. The child should be able to increase fine bio-motor and/or perceptual skills. Activities in the arts, particularly photography, which feature built-in success have the capacity to dramatically increase the self-concept of the child with a disabling condition.

Profiles in the Arts, a book produced by the National Endowment for the Arts, presents 20 inspiring case studies of visual and performing artists who have excelled in their respective art forms . . . and who happen to be disabled.

> Commitment, talent and imagination — these are characteristic of each of the individual profiles here.

"My friend Mark" . . . a photo by Danny.

What's more, each has shown the courage and audacity to disregard society's assumption that disability limits achievement. Arthur Pepine, producer of the Yale Cabaret, notes, "no one wants to be identified as a 'handicapped artist.' What we want is to have our output matched with anyone else's and aspire to levels that are absolute and not related to the way in which we perform them."

In **Profiles'** introduction, Itzhak Perlman, internationally known violinist, who is also disabled, states;

One of the greatest obstacles that disabled people often encounter is the attitudes of others: low expectations, inflexibility, narrow-mindedness. In this connection, museum curator Dianne Pilgram shares her dream, "I have a fantasy of being able to do something that changes the image that people have of disabled persons. I thought my career story would be a perfect chance to be a part of the process of changing people's opinion of individuals with disabilities.

Profiles in the Arts highlights ability rather than disability. I hope it will inspire administrators to look more carefully at their visual, performing, media, design and literary arts programs, and take steps to allow someone with a disability to achieve his full potential.

Let us as artists, educators, photographers, and collectively as people concerned about the quality of life for persons who are disabled *not* look for reasons why a disabled person cannot photograph. Let us instead focus on the positive and make adaptations in attitude, equipment, and the environment so an adventure into the expressive world of photography becomes a reality and can serve as a new bridge to communication for persons who are disabled.

Chapter 2

Eddee Daniel was a Visiting Faculty member for photography during the 1987 YOUNG ARTIST WORKSHOPS. Eddee is a full-time art teacher and Chairman of the Art Department at Marquette University High School in Milwaukee, Wisconsin. He holds an M.S. in Art Education from the University of Wisconsin-Milwaukee and a B.S. in Art Education from the University of Wisconsin-Madison. As a photographer and graphic artist, he has exhibited his work nationally—as have many of his students.

Photography and the Arts for Special Children Program

by Eddee Daniel
Photography Instructor

Photography is such an immediate and compelling medium that it offers wonderful opportunities for meeting a variety of educational and therapeutic goals. With the right equipment and guidance, photography can be made accessible to just about everyone.

"Visual literacy is an educational right for all our children, teens and young adults, handicapped or not."

As part of the 1987 YOUNG ARTIST WORKSHOPS/ARTS FOR SPECIAL CHILDREN PROGRAM at ST. NORBERT, I was able to bring photography to three widely varied groups of youths with special needs. Immediate feedback and subsequent comments by parents and teachers attested to the success of the program. These children and young adults had a positive emotional experience and were able to acquire some specific skills related to photography.

"Almost invariably the second picture was a distinct improvement over the first."

The groups included young artists who were mentally retarded (ages 12-22), who had learning disabilities (ages 7-15), and who were orthopedically handicapped or had communication disorders (ages 7-15). The goals were the same for each of the three groups, but the approaches and specific activities varied.

The goal of my involvement in the program was to make photography more accessible to these youth. Photography as a medium of visual communication is so pervasive in our society that many of us take it pretty much for granted. But, while photography does have characteristics which make it inherently motivating, it is nevertheless not always immediately accessible to youth with special needs. In order to make it so, the particular needs must be assessed by a qualified person, and an activity program must be developed with specific objectives which address those needs. The formality, emphasis, and comprehensiveness of the program can vary greatly depending upon the qualifications of the teachers and the goals which are set.

"They had to make value judgements and establish priorities based on a theme."

In our situation, I was brought in as the photography specialist. Having little background in special education, I was quite dependent on the lead teacher of each group to help me understand the capabilities and needs of the young artists in the group. As a result of this and the time constraints, we kept our

goals fairly simple. We met these goals with a gratifying degree of success. A more ambitious program could be developed, time permitting, under the direction of someone trained in the use of art and/or photography as a therapeutic tool. This is not necessary, however, in order to provide these young people with exceptional educational needs with a positive, educational experience of photography.

"The greatest benefit was that he enjoyed himself. School causes Aaron a great deal of frustration and I have not seen any of the usual fears—a real plus for him!"

—Parent

The program director, the lead teacher, and I identified four objectives for these workshops:

- To teach certain skills, primarily how to use the equipment and how to compose with the camera.
- To provide a way to improve communication and/or perceptual skills.
- To provide a positive group experience.
- To improve self-esteem and promote a positive self-concept.

I met with each group for an hour at a time, one session per week for three weeks. I suggested activities to the lead teacher, and together we worked out the details before each session. There was a follow-up meeting for feedback and evaluation after the sessions. For purposes of simplicity, I will discuss each group independently and completely before moving on to the next group. Before doing so, however, I add a few words about the equipment:

The standard camera used throughout was the Polaroid Sun 660 Autofocus. This was chosen because it was easy to use—the auto-focus, auto-exposure and built-in auto-flash provide for one-touch operation—and because it provides for immediate evaluation of the instant print. The film cost was not a major problem since we did not use that much of it—roughly three to four prints per person per session.

"How better can one work on improving self-image than to assert that one's image is worth preserving on film by doing so?"

The Kodak K-12 35mm auto-focus camera was used to supplement the Polaroid for the group with learning disabilities. This camera provides a similar one-touch operation while the 35mm film has a lower cost per print. It also has other educational advantages which I will mention later. The Kodak 35mm proved to be an extremely sturdy camera, and withstood heavy use and abuse throughout the program.

Mentally Retarded Group (ages 12-22)

Although each group presented challenges and offered its own rewards, I found that the youth who were mentally retarded were the most fun to work with. They had an unbounded enthusiasm for the activity and were invariably happy with whatever result they got.

"Most of these people had never used a camera before. They were almost all able to do so with a good degree of success."

While this tended to be true for all three groups, these youth made it more obvious. On the other hand, this group was the least adaptable and overall was the least able to improve on their first attempts.

For the mentally retarded group, we chose very simple themes to get them to respond to specific visual attributes of their environment. For the themes of colors and shapes the young artists just had to find something colorful of their choice, or find an identifiable shape and then isolate it or emphasize it compositionally. The theme of large and small

"I saw children being proud of who they are."

—Program Visitor

required them to take two pictures of different-sized subjects and relate them to each other. They responded very well; most were able to do the task. Some, of course, needed more coaching and individual attention than others, but in general I was very pleased with how well-composed their pictures were.

Their final activity was to do portraits of each other. While they tended to like everything they did, it was clear that they were particularly happy to have a picture of themselves. There were a couple of exceptions—some did not want to have their picture taken at all. Thus it is not clear to me whether we achieved our fourth goal (promotion of self-concept) or not. It is possible only those with a higher self-concept participated. If this is the case, I am certain time was the limiting factor rather than the medium itself.

"While they tended to like everything they did, it was clear that they were particularly happy to have a picture of themselves."

There is no doubt in my mind that to some degree the other three goals were met. Most of these people had never used a camera before. But they were soon almost all able to do so with a good degree of success (even the one who, by objective standards, had the most difficulty handling the camera *felt* successful). From their expressions and the nature of their interactions it was obviously a positive group experience. Finally, in the follow-up I learned that not only were they able to perceive and communicate visually, but the activity stimulated an unusual amount of verbalization as well.

Learning Disabled Groups (ages 7-15)

The group of children with learning disabilities included the greatest variation in ability and degree of success. Not only were there children having different specific disabilities together in one group, but there was a greater difference due to the apparent range of ages than in other groups. Some of the younger children would haphazardly fire away with the camera, never looking through the viewfinder. They were delighted to have the opportunity but achieved predictably poorer results. They needed a lot of one-on-one coaching and, in the

"With their cameras, these young photographers learned to move in and visually record their awareness of their environment, however limited for some."

end, I shot pictures of some of them. Having these pictures to take home with them seemed to please them as much as the activity itself, perhaps more.

For those of this group with higher abilities I used the most specific kinds of assignments. First, we started with portraits and an emphasis on composing clearly. Using the Polaroid camera, they each shot a picture of a partner. We looked at each picture, analyzed the problems with the composition (the most common problem being standing too far away from the subject), and then shot a second picture. The immediate feedback approach was highly effective; the Polaroid instant prints proved indispensable. Almost invariably the second picture was a distinct improvement over the first.

"Bobbi got to participate in activities she usually doesn't get to do. It was a great boost for morale and self-confidence."

—Parent

Their second assignment was to make a series of pictures which showed what it was like to go from one location on campus to another. We walked the route and they picked out landmarks along the way. For this we used the Kodak Model K-12 35mm cameras and a roll of 12-exposure film for each of them. This was not only more economical than instant prints, but the time lag between shooting and seeing the processed pictures was an important aspect of the activity. The children had to recall the resequencing of the images at the later date when the pictures were returned from processing.

Their third assignment emphasized the content of a photograph. They had to make value judgements and establish priorities based on a theme. The theme was to imagine themselves preparing to be astronauts on a mission to outer space. The task was to make photographs of significant aspects of their immediate environment to take with them as a record of what life was like on earth. This could be presented as either a way of remembering earth for themselves or communicating with alien life forms. In either case, they had to decide; a.) what was important enough to include, and b.) how best could it be communicated visually in a photograph.

"Not only were they able to perceive and communicate visually, but the activity stimulated an unusual amount of verbalization as well."

The theme was very successful as a motivator, which was its main objective. I did not expect, with this group, a great level of sophistication in their responses. They did, however, take the theme seriously and were able to make a valid discrimination about what should be included. I chose not to intervene with value judgements of my own but to let them establish priorities completely as they wished. I would have liked to follow-up this activity with a discussion, but time did not permit it. This limitation did not reduce the children's satisfaction.

"Photography is a powerful medium for communication and bridges the social isolation often found to a large extent in the special child's or young adult's world."

Again, I believe we met our goals. With perhaps two exceptions, the children were able to use the cameras successfully and show improvement. They were able to take the assignments and, through them, use the camera to communicate. They talked to each other and worked together on the activities. I have no doubt that it was a positive group and individual experience. They were very pleased with their results.

Orthopedically Handicapped Group (ages 7-15)

The biggest challenge in working with the children who were orthopedically handicapped was to establish some control of the picture-taking process. We were provided by Polaroid with adapted equipment which proved vital for this purpose. Polaroid adapted an instant camera with a plug-in device which could be used with two different triggering mechanisms: a pistol grip or a foot treadle. Another very important item was a monopod with a clamp on it which could be attached to the arm or frame of a wheelchair. The combination of these devices allowed us to overcome the two primary obstacles to using a camera: holding the camera steady and triggering the shutter. I worked with four children, none of whom could hold a camera steady unaided. The procedure we worked out was to take turns with the monopod (since we had only one) and I would position the camera in front of them, clamping it to the wheelchair. They would then aim the camera by moving the chair. The foot-treadle was connected to the camera and placed on the child's lap. When he was ready to trigger it, he pushed on the treadle with his hand, wrist or arm. Alternately, it could be taped to the wheelchair frame and be activated by the head, knee or foot.

With the physical limitations solved, motivation was not a problem. In fact it was tempting to feel that solving such an obvious problem was the whole task. These children, however, were not mentally handicapped and could easily distinguish between a strong, successful image and a less successful one. Giving them an assignment, as with anyone, also gives them criteria for evaluation of their images. This is essential at this beginning level of involvement.

"I did not sense any discomfort in these children with being the subject of the picture."

We did three activities: a scavenger hunt, portraits, and a spy mission. For the scavenger hunt they had to choose the kind of images for which they would search. When they found the image, they would make two shots of it with the Polaroid. We evaluated the composition of the first shot, then tried to improve on it with the second. They were almost invariably able to do so and were visibly pleased with their successes.

"I had them pretend the chair was a spy plane on a secret mission to photograph the St. Norbert campus. They took to the idea immediately."

The spy mission was a special twist I thought of just for this group. I felt that the wheelchair was an important and ambiguous symbol. On the one hand, it could represent their handicaps, but on the other hand, it was literally their

"They were able to take the assignments and, through them, use the camera to communicate. They talked to each other and worked together on the activities."

means of overcoming that handicap. Wanting to emphasize the latter, I had them pretend the chair was a spy plane on a secret mission to photograph the St. Norbert campus. They took to the idea immediately. My only regret was having to take turns and consequently dissipate some of the energy they brought to this activity.

"The activities I constructed and planned with the other teachers brought into focus both objects in these people's environment and awareness of each other as social beings."

I included portraits among every group's activities. Portraiture is what photography does best. And how better can one work on improving self-image than to assert that one's image is worth preserving on film by doing so? I did not sense any discomfort in these children with being the subject of the picture. Although they invested more evident energy in being the photographer, they seemed quite proud to sit for someone else as well.

Conclusion

All the children and young adults with special needs with whom I worked benefitted from exposure to the educational and therapeutic activities of photography. *Photography is a powerful medium for communication and bridges the social isolation often found to a large extent in the special child's or young adult's world.* With their cameras, these young photographers learned to move in and visually record their awareness of their environment, however limited for some. The *activities* I constructed and planned with the other teachers both *brought into focus many objects in their environment and cultivated an awareness of each other as social beings.* The *medium* of photography *proved to be a successful motivator* with very positive outcomes. It tapped into a well of energy and excitement for each of the three groups of young photographers and channeled that excitement into a successful product of their won unique selves.

Visual literacy is an educational right for all our children, teens and young adults, handicapped or not. Through this project, which combined expertise in the visual art of photography and adapting that art to the needs of the special student, a unique learning experience which is a familiar part of our cultural expression was made accessible. I have no doubt that the continued development of art programming which includes photography will greatly enrich and enhance the education of children and young adults with special needs.

Chapter 3

Sandy Siebens has worked as an art and photography teacher in summer arts enrichment programs and in the area of special education for a total of eight years. Her particular teacher certification is in the area of Early Childhood-Exceptional Educational Needs, and she is a member of the staff at Syble Hopp School, Brown County Schools for the Handicapped.

Learning Experiences with Photography and Mentally Retarded Youth

by Sandy Seibens
EEN educator

Drawing upon my previous experiences teaching photography to children (ages 8-13) in summer arts enrichment programs, I tried adapting those approaches for introducing photography to youth who were mild/moderately retarded. I had worked for two years as lead teacher in a visual and performing arts program with 13- to 22-year-old mentally retarded youth and young adults.

When planning an activity it is important to keep in mind both the age appropriateness of the activity and the functional levels of the students. A teacher working with mentally retarded students must also be aware of individual differences within each student (e.g., a student may be physically 17 years old, with social skills at 8-9 years, and a cognitive level of 3-4 years).

An example of this can be found in the following lesson plan in which the goal of identifying textures is appropriate for a student *functioning* cognitively at 3-4 years even though 17 years physically, while the use of a camera would be an *age-appropriate* activity for a 17-year-old.

We also explored the face as a means for communication. This was achieved through the use of the theatrical make-up, puppetry, and role-playing aided by the use of large mirrors. Through these experiences the students were able to explore and record their emotions with a camera.

An instant camera such as the Polaroid 660 is an excellent resource because of its immediacy. The Polaroid can be purchased for $20 - $25. A small group sharing an instant camera can explore, record, and share in minutes. An additional benefit of the instant camera is the elimination of the need for detailed explanations of the camera's use and darkroom procedures.

The "Textures" and "Emotions" lesson plans illustrate two activities as conducted with small groups of mentally retarded teens and young adults.

I feel the students benefitted from this alternate means of experiencing both textures and emotions. This was evident in their ability to achieve the objectives set out in the lesson plans. This was also apparent in their eagerness to share their photographs with their peers. Each student, regardless of functioning level, showed great pride in his/her ability to operate the camera and produce a photograph. The comments of parents at the festival sum up the success that can be achieved in using cameras in the arts and special education. After an excited arts festival participant had proudly showed his photographs of rough and smooth to his parents, they discussed the purchase of a camera for his birthday.

Photography: Textures (Rough/Smooth)

Goal: To develop each student's understanding of the textures rough and smooth.

Objectives:

1) Each student will be able to select the smooth object from a pair of rough/smooth objects 2 out of 3 times.
2) Each student will be able to select the rough object from a pair of rough/smooth objects 2 out of 3 times.
3) The students will be able to demonstrate an applied understanding of the textures rough and smooth by photographing at least one rough and one smooth object in the environment.

Materials:

Rough objects/smooth objects (at least one object for each student.
One instant camera per student.
Enough film for four photographs per student.

Procedures:

1) Discuss qualities of rough and smooth.
2) Show students examples of each.
3) Question students to see if they can name objects.
4) Students take turns selecting rough/smooth objects from a pair of objects.
5) Teacher identifies one rough and one smooth object in the environment.
6) Each student then identifies and then photographs at least one rough and one smooth object.
7) Regroup and discuss photographs.

Evaluation:

1) Each student will have successfully selected 2 out of 3 rough/smooth objects.
2) Each student will have photographed at least one rough and one smooth object.

Photography: Emotions

Goal: To provide students with an opportunity to explore their emotions through photography.

Objectives:

1) As a group, the students will be able to name at least five emotions.
2) Each student will demonstrate the body language that goes with three of the five emotions stated.
3) Each student will be able to photograph at least one friend demonstrating an emotion with body language.

Materials:

- One large mirror (or a small mirror for each student).
- One camera per student.
- Enough film for four photographs per student.

Procedures:

1) Discuss emotions with students.
2) Question students for examples of emotion.
3) With each example, explore the body language that goes with it by looking at self while making faces in the mirror.
4) Also, with each example discuss what makes them feel that way.
5) Students take turns photographing friends displaying emotions of their choice.

Evaluation:

1) Students will have named at least five emotions as a group.
2) Students will have demonstrated the body language that goes along with three out of five emotions.
3) Each student will have photographed a friend displaying a given emotion.

Chapter 4

Susan L. Gagnon combines a background in Special Education with her customer service expertise to serve as National Coordinator for ***Polaroid Project*** *SNAP (Special Needs Adapted Photography).*

Focus on Photography: Donald Levine

by Susan L. Gagnon

Donald Levine is one of those people who can venture outdoors with a camera anywhere, anytime, and always find something to shoot. "People in everyday life are too busy to notice what's really going on around them . . . to see birds, animals, flowers . . . the way a red maple tree leaf unfolds, or the design in a piece of wood," says Donald. "I'll shoot anything that will hold still long enough!"

Although he has just turned fifty, Donald still recalls sitting on his dad's lap at age 5 and watching him print and develop film. From 5-15 years old, he loved using the family's Brownie box camera. At age 15, he took a shallow dive which left him paralyzed from the neck down. Since then, however, with a few custom-made adaptations, and the constant use of a mouthstick, Donald continues to be one of the most prominent photographers in Rhode Island. He can often be found alone along the shore, among the boats, or in a park; always with a camera. He's traveled around the country in a van, capturing the beauty of America.

The motorized wheelchair is considered an advantage because it serves as a convenient permanent tripod. The key to Donald's independence, however, is the wooden lapboard with several ¼" holes drilled in it. They hold a number of specialized mouthsticks equipped with his tools: pen, phone dialer, paper turner, etc. One of the holes accommodates a custom-made base with a vertical pipe holding a panhead like the top of a tripod. Donald's Nikon F3 with autowinder fits securely on the top at eye level. He has a variety of lenses from 24mm wide-angle to 300mm telephoto. Each lens is equipped with two of the same accessories called a "quick focus lever," which he can move up and down with the mouthstick. By doing this, he can easily adust the focus and the f-stop. Even the mouthstick itself is a Donald Levine creation. He replaced his old

splintered wooden one with a simple homemade tapered Lucite dowel. The rubber finger on the end makes it easy to push the lever arm around the lens, as well as adjust the shutter speed settings on the camera. For quicker and easier shots, Donald will shoot with a small lens opening, therefore gaining a greater depth of field, and eliminating focusing.

Finally, when he has finished composing, focusing, adjusting shutter speed and aperture, he's ready to take the picture. He drops the mouthstick in the appropriate hole and reaches down to grasp the mechanical cable release in his mouth, biting the end of the release, trips the shutter to take the picture. This procedure is repeated on a regular basis, which accounts for the more than 9,000 images Donald has created. Basically self-taught, he has expanded his knowledge with courses on technique, lighting, portraiture, and modeling. Photography is such an integral part of his life, that he claims he couldn't conceive of life without it. When not behind a camera, he's behind a tape recorder writing a book called *The View from 36 Inches*.

Donald's best friend, Susan Wicklund, enjoys picture-taking with him and helps initially set up all the equipment. As his nursing assistant, Susan admits that she's learned a lot from Don in the past seven years, and that they love to go out together with their cameras. She now has her own impressive portfolio. Together they have a business, QUAD PHOTOGRAPHICS, and have done weddings, commercial work, and portraits. They also document the events for the Rhode Island State Council of the Arts, and participate in Very Special Arts Festivals.

In a typical week Donald teaches photography at United Cerebral Palsy Center, prepares for exhibits and shows, develops his color pictures in a commercial lab, consults to Polaroid Corporation's Project SNAP (Special Needs Adapted Photography), and signs and catalogues all his work. He's proud that many of his images have won prizes and are on tour. He's received recognition from the National Committee, Arts for the Handicapped, as well as local photo contests.

It is an understatement to say that Donald Levine is an inspiring character. Donald admits that, "the whole idea of photography is to teach somebody to *see*." After a day with him, anyone will *see* better.

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Chapter 5

George Covington is a legally blind photographer, author, instructor, and attorney, and is project director of The Tactile Capital, a project intended as the beginning of a movement to make Washington, D.C. the most accessible capital city in the world. The Tactile Capital includes raised-line and three-dimensional maps, and photographs intended for not only the blind and visually impaired visitor, but also for children, those with learning disabilities of all ages and the mentally retarded. Covington has authored the books "Faces I've Seen" and "LET YOUR CAMERA DO THE SEEING: The World's First Photography Manual for the Legally Blind." A summary of his comments and involvements are presented here by YAW staff writer and photographer Mark Peterson. Portions of Covington's "LET YOUR CAMERA DO THE SEEING" are presented in the following chapter.

Photographing to See: George Covington

Edited by Mark Peterson

For legally blind photographer George Covington the phrase "Other people see to photograph; I photograph to see" has become not just his trademark, but a way of life which began just as his vision was beginning to rapidly deteriorate.

His contact with photography led to startling personal discoveries about his disability, and his abilities. "It was startling to realize I had stopped seeing the faces of my friends and relatives," he explained in a *Washington Post* interview in 1984. "If I had not become seriously interested in photography at that point in my life, I would consider myself blind today. As long as I can see to photograph, I'll never be blind." He has gone on to become a nationally noted photographer and advocate of accessibility for the visually impaired.

The photography technique which Covington teaches extends the sight of the visually impaired by providing high-contrast black and white photographs. The prints reduce a wide tonal range and visually-confusing colors into a sharp image with a great depth of focus. A photograph may be used to control light, size, and distance, and thus compensate for a particular sight problem. It can be studied at length under light conditions suitable for a particular disability.

While promoting the benefits of photography himself, he also derides many in photography for contributing to its inaccessibility. "In photography, they're always teaching you there's only one way to do something, but there isn't. There are dozens of ways," he said. "The medium is incredibly forgiving. It's not necessary to build up this mystique."

"It's a simple concept. I don't know why I was the first one in the world to come up with it." And it is a concept for which he sees a large audience.

There are an estimated eleven million Americans with a visual impairment that cannot be significantly corrected. Of this population, only ten percent are legally blind and only one percent are totally blind. Ninety percent of the "legally blind" in the United States have eyesight. Most are mobile without the use of a cane or a guide dog. The definition of "legally blind" is a person whose eyesight can be corrected no better than 20/200. Photography can be used to increase accessibility to all but the totally blind.

Covington was born legally blind, with 20-400 vision in both eyes. Beginning about 15 years ago, his vision rapidly deteriorated until he had lost all vision in his left eye and now sees with less than ten percent of normal vision on the edge of his right eye. He could still read, but only with the help of a 12-power magnifying lens.

His vision had reached the point where he had stopped really seeing his friends and relatives, but did not realize the extent of his loss of vision and contact with these people. His interest in photography came about while helping a girlfriend move about the countryside doing landscape photography. Large, high-contrast black and white prints revealed details and information he had not seen. "In some cases I did not even recognize the scene I had looked at for half an hour," he said.

Thus began a program of discovery and rediscovery through photography, he wrote. "I discovered that old friends had familiar faces, while new friends sometimes did not look anything like I thought they did. At this point, the full impact of photography hit me. I had stopped seeing faces and begun to imagine."

He crystallizes the extent of his discovery with the oft-quoted quip about his self-portraiture: "I expected to see a young Robert Redford. Instead, I saw a young Groucho Marx."

This new sense of inner vision came rapidly, if not easily, to Covington. Long accustomed to estimating distances, he quickly settled on a range-focusing camera. A wide angle lens provides a great depth of clarity or focus. Using an enlarger causes him the most difficulty, but there he simplifed the procedure by first focusing with a high contrast negative and then substituting the negative he wants to print. A tape recorder can substitute for a timer and for written procedures.

While he could not see clearly what he was taking, he could make prints and evaluate them for exacting detail. He "can't tell you how closely his photographically enhanced vision approximates reality because he's never seen reality," but Covington can tell you this: "I can see a small blemish on a print that I can't see on an actual face. What it does is reduce confusing three dimensional shapes and forms to small, two dimensional representations. I can't get more than a few inches of detail from something as large as a painting."

Photographs allowed him to capture gestures he "felt but never really saw, moods he always sensed but couldn't translate into facial gestures," he told the Star in 1978. No image was or is off-limits. No picture is wasted. It's not unusual for him to discover things in a photograph that he never saw when the shutter snapped — "blind luck," he calls it — but the sometimes unexpected results do not detract from the serious reasons for his photography.

"Even close friends of mine who are photographers occasionally lose sight of the fact that I photograph to see. They often see more in my work than I do. But I don't print pictures for art. I've been called a visual primitive, and I guess that's true," he said.

A friend and veteran photogrpaher, Arnold Newman, dismisses any charges that the element of chance detracts from Covington's works by telling the Star: "Great accidents always seem to happen to great photographers.

"Why is it Goerge's work has so much unity to it? This cannot be an accident. I'm not saying he's the greatest photographer around. It's his ideas about photography and his dedication to ideas that count. His intelligence and understanding of photography — they're just

incredible. I've done this for 40 years, and he's given me ideas I never thought of," Newman said.

Covington, who has degrees in journalism and law through the University of Texas at Austin, was teaching journalism courses at the University of West Virginia when he lost all functioning vision in his left eye within one month. Soon afterward he opened a general legal practice in Austin with the intent of offering free photography courses to the visually impaired.

He quickly decided he would rather work full time helping the visually impaired but encountered a lack of opportunities. His first assignment as an instructor was teaching sighted students. He moved to Washington D.C., where a conservative estimate put the visually impaired population at 10,000. There he found consulting and advocacy work, but initially very little interest in supporting a free photography course for those with visual impairments. It was the relatively small Glen Echo Park program, operated by the Park Service, which offered him a class on his terms. About that time he was also offered an advance for his first book, entitled *Faces I've Seen.*

Since then Covington has gone on to offer workshops sponsored by Polaroid Corporation and a variety of museums and institutions including Smithsonian. The workshops are designed to introduce visually impaired persons to photography as a tool for seeing—not just for seeing in museums but in the world in general. Covington presents methods for using photography to see everything from works of art to architectural design, from portraits of famous American faces to faces of friends and neighbors. Participants have the opportunity to experiment with these techniques using Polaroid cameras and instant film, or their own camera if they have one they wish to use. The workshops have also included presentations by blind photographer Tina Martin and Polaroid special services representative Susan Gagnon.

Martin, from Philadelphia, is totally blind. She uses Polaroid cameras to take pictures which she then has others describe to her. This technique allows her to form a much broader mental image by gathering a variety of interpretations, using other people's eyes to interpret faces and scenes which they may not have seen.

Now Covington is involved in the highly ambitious "The Tactile Capital" project as project director, again serving to fill a need that many did not know existed until recently. The first phase of the project was to produce three-dimensional maps of major capital buildings and monuments. This task came about when a Congressman requested maps for the visually impaired and it was discovered none such existed. The project now also inlcudes photographs which show details and perspective out of reach to partially sighted viewers. The project's goal is to make our nation's capital the most accessible capital city anywhere in the world.

"If we can make the Capitol Building accessible we can make any place accessible," he has said of the project to map and interpret the labyrinthine structure.

Covington wants to extend the use of cameras beyond therapy to the appreciation of art and architecture, among other things. He wants museums to provide large photographs of architectural details or expanses and large

paintings which cannot be reached by the handicapped or which cannot be properly seen by those with visual impairments.

The most important aspect of reducing a scene or object to a photograph, is that it allows the visually impaired person to have total control over viewing by allowing the person to control both detail and perspective.

A photograph allows a person with diminished vision to view the scene or object represented by the photograph in the best light and at a distance from his eyes that best compensates for his particular disability. While many require a great deal of light for best results, others might have a vision problem that requires them to see the light coming through from the back of the print.

Also, a photograph allows a visually impaired individual to see both detail and perspective at the same time. If the person were to try to move close enough to an object to see detail, he would see only a few inches in any direction. Thus he would lose overall perspective. If he were to back away far enough to have an overall perspective, he would lose detail.

While most historic sites and buildings have been photographed countless times, Covington said, the photographs were shot to convey beauty more than information. More attention was paid to the esthetic of the photographer and the scene than to conveying information. Embracing Covington's techniques would greatly assist the ninety percent of the legally blind that have some sight, and whose needs have until recently been largely ignored.

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Chapter 6

This chapter is a partial reprinting with permission of "LET YOUR CAMERA DO THE SEEING: The World's First Photography Manual for the Legally Blind," by George A. Covington, edited by Anne Ford, Copyright 1981, published by National Access Center, Washington, D.C. The author found the necessity for the book demonstrated by a course in photography for individuals with low vision taught at Glen Echo National Art Park in the fall of 1978. The book provides a thorough introduction to photography and thoughtfully addresses many concerns of those persons with visual impairments, and also is interesting reading for anyone involved in teaching photography to beginners.

Of the information reprinted, the "Introduction" is presented in full and the "Camera Functions" and "Subject Matter" chapters are reprinted in part. The book also includes the following chapter headings which are not presented here: A Brief History of Photography; Emulsions; Processing Film: Equipment; Processing Film: Techniques; The Darkroom; The Printing Process; Possible Problems; Sources and Bibliography.

This photography manual by Covington is available at no charge to the blind and handicapped through the National Library Service: Divisoin of Blind and Physically Handicapped, Library of Congress, Washington, D.C.

Let Your Camera Do The Seeing:

The World's First Photography Manual for the Legally Blind
by
George A. Covington

Most people see to photograph, I photograph to see. I was born legally blind with 20/400 vision in both eyes. Because of a combination of astigmatism, nastagmus, ececentric fixation and myopia (all acute) my eyesight was not optically correctable. Over the past 10 years, I have lost most of this vision due to a retina degeneration problem. Presently, I function with less than ten percent of normal vision on the periphery of my right eye.

Shortly after my present vision loss began, I discovered that photography allowed me to keep open this priceless channel of perceptive communication. It was startling to look at a self-portrait and realize I had stopped seeing myself in a mirror. It was equally startling to realize I had stopped seeing the faces of my friends and relatives. If I had not become seriously interested in photography at that point in my life, I would today consider myself blind. As long as I can photograph, I will never be blind.

Photography allows me to see what I otherwise could not see. It is easy to understand why a photograph, particularly a black and white photograph, is easier to see than is the scene it represents. A photograph is not reality, but rather an abstraction of reality. Even the most correctly developed photograph is a high-contrast abstraction of the object it represents. Thousands of colors, shades, hues and textures, are reduced to a few shades of gray, between black and white. Confusing shapes and distances are reduced to two dimensions.

The most important aspect of reducing any scene or object to a photograph, is that it allows the visually impaired person to have total control over what is seen by allowing control of both detail and perspective. There are two aspects to the control of both detail and overall perspective. First, a photograph allows a person with diminished vision to view the scene or object represented by the photograph in the best light and at a distance from his eyes that best compensates for his particular visual problem.

Secondly, the photograph allows a visually impaired individual to see both detail and perspective at the same time. If a person tried to move close enough to an object to see detail, he would see only a few inches in any direction. Thus, he would lose overall perspective. If he backed away far enough to have an overall perspective, he would lose detail without gaining perspective.

This manual is intended to be a starting place. It is written to assist individuals who want to learn a simple approach to photography. For each technique described in this manual, you can find a dozen photographers who will swear

they know a better way. I do not contend that my methods are the best or the only way. But they have worked for me and they can work for you.

Many people with low vision may read this manual and decide they do not want to spend the money or spend the time necessary. You may decide to do your own film processing and have your prints done commercially. You may even decide to avoid all hassle and use Polaroid cameras. While the instant print is small, it has excellent resolution. At best, this manual will help many with impaired vision develop techniques that will allow them to see their world better. At the least, the manual will give a brief overview of a process that has created the most democratic art form in history.

Camera Functions

The camera is nothing but a light-tight box which is loaded with light-sensitive film. It takes pictures by allowing light to enter through the lens and the shutter, thus exposing the film.

There are two ways of controlling the amount of light which falls on the film. The first way is the aperture or f stop. This is a measurement of the size of the opening in the lens allowing measurable amount of light to enter. This is the most important measurement for the visually impaired photographer to understand. The second way of controlling light is the shutter speed. That is, the speed with which the shutter opens and closes thus letting in light.

Aperture or f Stop:

The lens barrel of your camera will be marked in numbers such as 2.8, 3.5, 4, 5.6, etc. These figures denote the size of the opening in the lens. What confuses many people is that these numbers actually represent fractions of a whole number.

The first time you look at your lens, you may assume that f/2.8 is smaller than f/16. What you must remember is that the 2.8 is actually 1/2.8 and that the 16 is 1/16. So you should understand that the first number is approximately 1/3 of a whole number and the second number is 1/16 of a whole number. Each change in the f stop from a larger opening such as f/4 to the next smaller opening, f/5.6, actually halves the amount of light hitting the film. Conversely, going from f/5.6, to the next largest opening, f/4, doubles the amount of light hitting the film. (The major thing that a visually impaired person must remember is that the f stop controls the camera's depth of field, explained later.

Shutter Speed:

Shutter speed is the amount of time the shutter remains open. On the camera this is translated into numbers such as 1/30, 1/60, 1/125, etc. These measure fractions of a second. As the shutter is changed from 1/60 to 1/125 of a second, half the amount of light will hit the film. Conversely, as the shutter is switched from 1/125 to 1/60, twice the amount of light will hit the film. On a sunny day, you will need less light, so you will probably want to use 1/125 or higher. In indoor scenes, where the light is dimmer, more light will be needed, so the camera should be set at 1/60.

Metering:

In order to know where to set the f stop and shutter speed you will need an accurate reading of the light. This read-

ing is obtained by use of a meter.

While most modern 35mm cameras have internal metering, the metering information is generally displayed in the viewfinder and thus is invisible to many individuals with low vision. An easy remedy to this is a small hand-held meter. It can be easily viewed with the use of a small magnifier. These meters can be purchased for as little as $20 although far more expensive ones are available.

There are two types of metering. Incident metering measures the light falling directly on the subject. Reflected metering measures light reflected from the subject. Internal camera meters are reflected meters. External hand-held meters may be either one or both. Because it is not always easy to approach your subject in order to measure light falling directly upon it (incident metering), reflected light readings are more frequently the norm. Most hand-held meters read a light angle of 30 degrees which allows a great deal of room for error if your subject is more than a few feet away.

A simple method of guaranteeing an accurate meter reading is to read an area as close to you as possible and set your controls according to this reading. An example would be taking a light reading of your hand and setting the controls of the camera. This would give you an accurate exposure for a person with similar skin tone who is standing across the street. Remember however, if the person is standing in shadow, meter your hand in shadow and if the person is standing in bright light, meter your hand in bright light.

If you are metering a distant scene such as a mountain range, try to locate a shadow near you that appears as dark as the mountains in the distance. Meter the area near you and set your controls accordingly. Because each light meter will have different properties, the best guide to using your individual meter will be your owner's manual.

Breakpoints:

Both in the area of shutter speed and f stops, there are certain numbers you must keep in mind. These numbers will ensure your control over proper focusing by controlling the shutter speed and the aperture.

Shutter Speed:

While most conventional cameras go from one second through 1/500 of a second, the crucial number to remember is 1/125. Below 1/125, your shutter is within range that will show motion as a blurred image. In some instances, you may want this effect so you will use the slower shutter speeds of 1/60 and below. If you are hand holding your camera, you should use 1/30 and below only if you can remain extremely rigid. While you can eventually master hand holding the camera down to 1/15 in most instances, it is best to try to shoot above 1/60, or else place the camera on a tripod for stability. Above 1/125 your camera will begin to freeze the action it sees. A runner or bicyclist will be stopped in midmotion and frozen. Because the world of the visually impaired is often blurred, most individuals would probably prefer to crystalize time and space. This can be ensured by shooting most situations at 1/125 and above. However, the effects of the shutter speed (i.e. showing motion or freezing it), must constantly be considered as they relate to the more critical factor — depth of

field, which is controlled through f stops.

Aperture for Depth of Field Control:

Depth of field simply means that zone in front of and behind the subject which will be in focus when the picture is taken. As the lens aperture is closed down (remember the larger three numbers represent the smaller openings of the lens), the depth of field increases tremendously. So with a small opening, such as f/16, more of the picture in front of and behind the subject will be in focus.

While this depth of field increase is true with any camera lens, its effect is increased when a wide angle lens is used. A wide angle lens is defined as a lens whose focal length is 40, 35, 28, 21 mm or below. Today the 40 mm and the 35 mm are considered moderate wide angles. Most inexpensive non-interchangeable lens cameras will have a lens with a focal length between 40 mm and 35 mm.

One of the most important properties of the wide angle lens is its inherent depth of field. When you combine the inherent depth of field of the lens with an aperture opening of f/5.6 or greater, an educated guess about the distance to your subject will probably put you in the ballpark and ensure a sharply focused picture. Control of depth of field is probably the single most important factor in allowing a person with low vision to produce sharp images.

While infinity (meaning that area of greatest focal distance) may be 50 feet on the 50 mm (normal) lens it may be 10 to 15 feet on a 35 mm to 40 mm lens. Thus a scene more than 10 feet away may be shot by placing the wide angle lens on infinity and disregarding further focusing.

Scale Focusing:

While the two most common focusing systems are the reflex and the range finder systems, by far the easiest for the visually impaired to use is scale focusing. Scale focusing simply means setting the lens markings according to the distances marked in feet, meters or images printed on the barrel of the lens. A small hand-held magnifying device such as 6, 12 or 20 power, depending on your vision, will allow an individual to dial the correct distance on almost any lens. As you can see from the discussion, a wide angle lens will allow you greater leeway. while the depth of field may be measured on the normal 50 mm lens in inches, on a wide angle lens it can be measured in feet.

After you have worked with the same lens and camera for a very short time, i.e., a half dozen rolls of film, you will begin to understand the properties of the particular focal length of lens on that camera.

Fully Automatic Cameras:

Many manufacturers today have fully automatic cameras. Supposedly, all you need do is set the ASA (see chapter 3, film) and the camera will not only set the appropriate shutter speed and f stop, but it will also focus itself for you. While these cameras can do a good job, they also take away from you most of your ability to control the final image. While some people may prefer to just aim and shoot, others may want to be

able to control the medium more precisely.

Semi-Automatic Cameras:

The semi-automatic camera comes in two major varieties, aperture priority and shutter priority. For the visually impaired, the aperture priority is by far the easiest to control. Aperture priority simply means that the individual sets the f stop and the camera sets the shutter speed. As control of depth of field is paramount to the visually impaired, it is better to have a good idea of what will be in focus than to worry about the shutter speed. Shutter priority cameras allow the user to set the shutter speed and the camera will select the necessary aperture for proper exposure.

The problem is that the semi-automatic cameras will always try to find a safe speed between 1/125 and 1/250 of a second. This speed will not always guarantee that the aperture reading will have sufficient depth of field to guarantee a ballpark guess on scale focusing.

Making Any Camera Fully Automatic:

The problem with many "fully sighted" photographers is that they spend so much time trying to focus their cameras, they miss the picture they wanted to take. I will explain how to avoid that pitfall by prethinking, presetting, and prefocusing the camera. It does not take a great deal of imagination to understand that most lighting situations will allow you to set your camera on an f stop of around f/8 and a shutter speed of around 1/60. These numbers are not etched into metal and can be changed, but they are a general guideline. If you set your camera on a distance of 6 feet, nearly everything from 4 feet to infinity will be in focus. By presetting your camera, you can literally "aim and shoot" much more quickly than a person who has to visually focus. Again, a few rolls of film will show you the flexibility of your camera. Don't be afraid to experiment.

Experiment and Learn:

Pick someone you would like to photography and place him or her in front of tall shrubbery or some other recognizable background. Stand four feet from your subject and set your camera on f/2.8 or f/3.5 at the appropriate shutter speed. Have your friend hold up two fingers to indicate that you're using the wide open f stop. Take the picture and reset your camera on f/5.6 and have your friend hold up five fingers. Readjust the shutter speed to allow for the smaller f stop and take the picture. Experiment with several f stops, distances and backgrounds with your friend always giving a visual sign identifying the f stop being used. When you view the prints, you will literally see the background change from a sharp scene to a blur, depending on your f stop.

A camera is nothing but a box that holds film. It should be controlled absolutely by the person who holds it. It is simply a tool (or a toy). The little box is not magic. The only magic occurs when you decide to push the button. If you have the advantage of knowing a person who can answer your questions on photography, remember that there is no such thing as a stupid question; there are only stupid answers. Photography is what the individual makes of it. You will quickly discover that a few rolls of film will make you more of an authority

than a person who has never processed film. A few dozen rolls of film and you'll be thinking about teaching your own course.

Subject Matter

Anything is fair game. While it has become quite fashionable among many photographers to define things they will never shoot, such as kids and cats, no subject matter should ever be consciously excluded unless you want to give up seeing that object. Because you are shooting with a relatively wide angle lens, there are a few limitations of technique, but you determine the limitation of subject matter.

Portraits:

One of the major problems with beginning photographers is their reluctance to move in close. It has been said that if it's not a good portrait, you were not close enough. I have always said, if the subject is really ugly, you were too close.

With most non-interchangeable 35 mm lenses, three feet is the closest focusing distance. However, with a camera stopped down to f/16 or f. 22 and a small strobe, you can easily move in to two feet. This distance will give you a face that almost fills the frame.

While some people may want an environmental portrait that shows the subject at home in the surroundings, others may prefer a romanticized face. Try to shoot both for yourself and your friends. You will quickly discover that if you restrict your photography to just your family and friends, you will never run out of subject matter.

Children:

Photography allows you to photograph children as they grow and change and develop their own personalities. It allows you to document a life in constant change. There is not a best way to photograph a child, however, closeness counts. Generally, children who are formally posed look as though they have just returned from the taxidermist. I have long contended that any child who can sit still long enough for a formal pose has either been drugged, scared out of his mind, or is running for public office. While it is more difficult for the photographer, it produces a much more realistic picture if you allow the child to be himself. A child is energy in a small box and can best be captured with your camera present and ready to shoot.

Landscapes:

Even students with perfect eyesight are amazed to discover detail in a scene or building that they did not see when they shot the picture. The value of shooting architecture is both historic and aesthetic. A print will allow you to study the facade of buildings without appearing to be a window peeper. As neighborhoods and entire cities change, your photography may be the only way to actually remember the past. You do not have to go to Afghanistan to shoot interesting pictures, but can find them by simply walking around the block. One thing to remember is that unless you have a perspective control lens (a lens designed for 35 mm use in architectural shooting) the taller the building, the more distorted it will appear.

Animals:

When photographing animals, you should have the same philosophy you have as in photographing children. The more an animal becomes accustomed to you and your camera, the more natural your picture will become. Some animals, like some people, have an aversion to the camera that never leaves. However, I have known some animals that love to have a strobe fired in their face. If after many rolls of film, you discover there is no way you can please Aunt Agnes with a portrait, try photographing her cat. This way you both might be mentioned in her will.

Chapter 7

Vera Scalingi, consultant to Polaroid, is a professional photographer who holds a master's degree in Art Therapy. She is founder and director of Photo Projects, a consulting firm which assists health care agencies and schools in the development of client-centered photography and video programs for recreation, rehabilitation, and education.

Project SNAP

(Special Needs Adapted Photography)
by Vera Scalingi

Project SNAP (Special Needs Adapted Photography) is a challenging venture which originated several years ago at the Polaroid Consumer Resource Center in Cambridge, MA. At that time, there were an increasing number of calls from individuals who were mobility impaired. Unable to use cameras in the conventional manner, they wanted to take photographs. They called Polaroid seeking a solution to this dilemma. Susan Gagnon, who was then a Senior Customer Service Representative, had fielded many of these calls. She saw this as an opportunity for Polaroid to meet the needs of special consumers and pioneered the project within the corporation.

Although Project SNAP is still in its research and development stage, its mission is clear. SNAP endeavors to make Polaroid products and services accessible for persons with disabilities and to assist the special needs community in the use of Instant Photography as a therapeutic and educational tool.

Under Project SNAP's umbrella, Polaroid has undertaken the production of two adaptive camera systems. One is a pistol grip camera which enables the user to hold the camera and take a picture with just one hand. The other is a wheelchair camera holder which attaches to a wheelchair and holds the camera at eye level in front of the user. Both these systems utilize Polaroid Sun 660 cameras which have been redesigned electronically to accommodate either a pistol grip or a tread switch. The pistol grip system is available on a limited basis. The wheelchair camera holder is being tested before final production; the date for availability has not yet been established.

As Polaroid began to discuss its efforts with rehabilitation professionals throughout the country, the need for an Instant Photography activities book became apparent. These conversations led to the development of the SNAP Activities Manual, a resource guide for professionals who work with special populations and for parents of special children. Professionals from a cross section of clinical disciplines, working in agencies throughout the country, contributed a rich selection of ideas. The manual is currently being edited and designed by Vera Scalingi, consultant to Polaroid, and contains over 100 activity projects illustrating how to use Instant Photography to develop communication skills, cognitive and perceptual abilities, ADL skills, self-awareness and self-expression. The activities stress client participation, interaction with the environment, and independent functioning. Publication is scheduled for 1989.

The third major undertaking of Project SNAP is the development of a workshop series to acquaint the special needs community with the various appli-

cations of Instant Photography. To date, numerous SNAP workshops have been offered in the Northeast to persons with special needs, to clinicians and special educators, and to parents of special children.

Additionally, Polaroid maintains a TTD line for hearing impaired consumers and close captions all of its advertisements.

In issues of APA [**A Positive Approach**] Susan Gagnon and I contribute articles about adaptive photographic devices and equipment which can make photography more accessible, persons with disabilities who use photography in unusual ways, the SNAP Manual, and pointers on improving your photographs.

For further information about Project SNAP, write to: Polaroid Corporation, Project SNAP, 784 Memorial Drive, Cambridge, MA 02139-4688, or call: 800-343-5000; TTD: 800-448-6708 or 800-848-7100 (in Massachusetts).

Susan Gagnon combines a background in Special Education with her customer service expertise to serve as National Coordinator for Project SNAP. She is currently President of the New England Society of Consumer Affairs Professionals in Business.

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Chapter 8

Mark Peterson is a technical writer and computer applications consultant for the Young Artist Workshops. His photographic experience includes teaching a variety of courses and groups, and several years as a photographic sales consultant. He has exhibited his prints in Wisconsin and Michigan. Project Director Charles Peterson also contributed many ideas for this chapter.

Access to a Darkroom

by Mark Peterson

Recent advances have made 35mm photography accessible to more people than ever before, but darkroom access has not kept pace with these rapid advances.

Fewer stores are stocking darkroom supplies because of limited demand, they say, but it does not follow then that darkroom photography should not be taught in an educational setting or should not be pursued as part of a hobby in photography.

It is true that photographic purists and professionals are being eclipsed in numbers by the explosion of 35mm photographers brought on by the new easy-to-use cameras. It is also true that cameras with manual exposure controls, or even manual focusing, are rapidly dissappearing.

Consequently, a large percentage of photographers now did not get their introduction to photography through a course, and are not likely to get into the darkroom on their own. It is not economical for retailers to support the learning curve required for the darkroom, and professionals do much to maintain an unnecessary mystique about the darkroom. Furthermore, educators may balk at the greater physical equipment requirements and additional support hours required teaching darkroom processes versus teaching camera use.

Nevertheless, darkroom photography should be part of all but the most brief introduction to photography. At the very least it can help dispel the mystique that what happens after you snap the shutter is all techno-magic. And certainly if darkroom access is part of the educational curriculum in a mainstream setting, it should not be — and need not be — denied to persons with exceptional educational needs.

Yet the darkroom does present many physical, chemical, and economical barriers for the EEN person. There is also a need for special but simple safety considerations. The person with physical disabilities faces barriers of height and space in conventional darkrooms; but many barriers, such as counter height, are not insurmountable. And while there is a huge variety of high-cost alternatives such as daylight enlargers and mechanical print processors, there are also many inexpensive modifications one can easily make with a can-do philosophy and a few carpentry tools.

In terms of percentages, access to the manual controls of darkroom processing is in decline. Just as one-hour processing labs have proliferated, the number of photographic retailers that sell darkroom processing equipment has declined.

It is certainly possible to take great pictures without practice in the darkroom, and it surely is convenient to let someone else do the developing; but it

may not allow you to be the best photographer that is possible for you.

Let me mix in a metaphor and explain my bias thus: Microwaves are great timesavers. And without one I would do a lot less cooking. But the cooking happens so fast I have no time to sample the food, to blend in seasoning, to coax and correct as I go. When I microwave exclusively for long periods of time, I run the chance of forgetting just how good my home cooking can taste. When I do take the time to cook conventionally, I am far more satisfied, not just by the *results*, but by having gone through the *process* of cooking.

And so it is in my view with the darkroom. A lot of potential satisfaction is being missed by a lot of people. It's fine for an individual to make a conscious choice to forego the darkroom. But to skip darkroom processes in a series of photographic classes is denying many photographers the opportunity of finding out just how great their photography can be. They are missing part of the process.

Even a brief introduction to the darkroom can greatly enhance an understanding of how the photographic image is made. It can teach the use of light and color more fully. Not only does darkroom work teach more of why things turn out, it also permits correcting the things that didn't. Dodging and burning are techniques that can lighten a face, darken a sky, or correct a blemish. Contrast can be controlled. Plus you have the choice of black and white or color. This chapter will, however, deal mainly with black and white due to the text limitations and the prevalence of black and white as an introductory medium.

Few labs these days will profess to having good black and white processing. Most do not offer 'custom' services such as dodging and burning. Even fewer will try to teach you where you went wrong on the images from the last roll of film.

Part of the reason for diminishing access to darkroom photography is reduced demand, but part of it also is the fear resulting from the mystique perpetuated by many photographers.

For each of the multitude of films available, there is a permutation of chemical processes available. Do you process your Plus-X in D-76? Rodinol? Brand X? What's your dilution rate? Do you underexpose the negatives and overexpose on the processing, or is it the other way around? There was (or is) even a danger of Plus-X disappearing in the wave of the new more technically demanding T-Max films, but a counterrevolt by darkroom enthusiasts seems to have forestalled this.

At the very base of all this brouhaha is the fact that processing old standbys like Plus-X requires only two chemicals — developer and fixer — and the manufacturer's recommendations do just fine. Photographic papers likewise need only developer and fixer. All the other chemistry consists of fine-tuners, time-savers, and money-savers. And you will probably use some of these as you get more comfortable in the darkroom.

As enlargers go up in price, they increase in stability and in the ability to accept negatives larger than 35mm; a higher priced enlarger does not proportionally provide higher-quality prints. The key is in the enlarger lens. A $50

lens will do a pretty good job, but if there's one area where you'll want to spend more, this is it.

Aside from the enlarger — which can be bypassed for contact printing, photograms, and other direct-to-paper techniques — and perhaps a film developing tank, all the other truly necessary equipment consists of a variety of items in the under $20 range for which you can even substitute lower cost alternatives from a mass discount store. Dish pans, graduated juice containers, and the like are low cost — although perhaps not long-lasting. In any case, make sure you clearly and permanently label all equipment used for photographic purposes.

Now let's look at some specifics, starting with the room itself and then proceeding to the enlarger, other equipment, procedures, tray-processing, and finally some important chemical safety considerations.

I would hazard to guess that most people with their own darkroom wish it were better designed and equipped. They also probably have many great ideas for modifications that resulted from their first attempt. The first modification is probably more space, second is more comforts (like a stereo), and better equipment comes in third. I have installed four darkrooms in apartments so far, and have worked in a half-dozen or so others. Space versus exclusive use is usually the primary consideration; overall convenience sometimes gets lost in the shuffle.

Two places may need to be dark: the enlarger location and the processing location. I say 'may' because self-enclosed enlargers are available and because color prints are usually procesed in a light-tight drum. If it's the only workable way, the two locations can be separate. Running water is not a necessity in the darkroom.

Assuming the enlarger is not self-contained, let's consider just a few alternatives, including a whole room, a closet, the bathroom, and a constructed box.

The most workable situation is quite often a whole room of whatever size. It requires the least carpentry expertise and cost. It also provides plenty of space to move around in. The concerns become light-blocking windows and doorways rather than construction. Temporary alternatives are lightweight and low cost. Masking tape is inexpensive and does not leave a residue with temporary use. Duct tape darkens more and is more permanent. If the room is large enough, light-blocking does not have to be total: a combination of light diffusion and the amount of time the photographic paper is exposed to room light may create a workable classroom situation. If you can see your hand in less than a minute with the lights off, you probably need to darken some more light openings.

Windows can be blocked by styrofoam or wooden panels, or by dark cloth. White styrofoam is cheapest, but will crumble somewhat with handling and may transmit some light. The blue or pink insulating styrofoam is denser and more permanent. Black felt is a possibility, but there is also a fairly low-cost rubberized canvas available through larger mail-order outlets which is extremely workable. One layer completely blocks light. It can be sewed, glued, taped or stapled. If the material is

dense enough to not allow light to pass through, you only need worry about the edges where the board or cloth meets the window.

For quick temporary use, consider using inexpensive black construction plastic with 2" masking tape as a temporary device (or duct tape more permanently). Another alternative is to cut pieces of styrofoam: for one-time use the white beaded board, or better the pink or blue type that's used for exterior insulation because it lasts longer. Then using adhesive-backed foam tape put a seal around the outside of the panel to make it seal better around the window. For cutting the styrofoam, a table saw, saber saw, or even a long, slender-bladed freezer knife will work. Try perhaps a half-inch adhesive foam edging on the outside; it may seal the window very nicely with no other holding devices.

One semi-permanent window project, for a bathroom, involved a cloth 'cap' to fit around the window frame. A thin strip of black Velcro (TM) was stapled inconspicuously to the outside edge of the window molding. A one-inch 'corner' was sewn into the rubberized cloth, and the mate to the Velcro strip was sewn around the edges of the cloth. The window could be darkened almost totally in less than a minute without tape or extra hardware. Another semi-permanent panel involved a plywood panel with foam weatherstripping around the edges. Four small holes were drilled into the window frame so that wire pins placed in the holes would hold the panel tightly against the window.

Doors may also be darkened with a combination of black plastic and tape. But do not seal the door shut so that it cannot be opened immediately in an emergency. Sometimes foam weatherstripping between the door and frame is all that's needed. Or perhaps a combination of an overlapping stiff black edging on the opening edge of the door and a strip of cloth or plastic taped to the hinged edge of the door will work. Another approach is to work on the outside of the door that opens into your darkroom. Tape or otherwise fasten a dark curtain to the outside of the doorway and it may block the light enough by making it travel around too many corners.

A small red bulb is a sufficient safelight for beginning black and white processing. Try a 7½ watt red photo bulb or a 15-watt red bulb from a hardware store if the room is sufficiently large. Put either in any inexpensive flexible lamp such as the gooseneck or drafting type.

For power use a multi-outlet overload-protected power box on a grounded extension cord. Screw it right onto the makeshift darkroom counter or portable enlarger stand. Where there is any chance of a liquid spill coming into contact with electronics, wire a Ground Fault Interruptor (GFI) to your enlarger location. A GFI's inexpensive (perhaps under $10) and may be required by local electrical code.

Make sure your timer displays and processing instructions are plenty large. Or, perhaps, consider the solution proposed by George Covington in his book *LET YOUR CAMERA DO THE SEEING* and combine the timing and the instructions on an audio tape. The tape recorder is a simple and economical solution, and most homes or schools already have access to one.

If the darkroom is in a small room or a permanent installation, ventillation is an important consideration. Pent-up chemical fumes, especially some color chemistry fumes, pose a health hazard. A small light-tight room is also going to be fume-tight. Light-tight louvers start at under $10 and blowers start at under $40 from at least one major photographic warehouse.

The major problems that I've encountered in converting a whole room into a darkroom are conflict of uses and dust. With a little forethought the actual blackening-out doesn't take that long, but you'll want to reverse your efforts right after you're done. If the room is a bathroom or classroom, it's nice to have your windows back when you're done. A workroom may not always be ready or tidy enough for conversion. Dust is present everywhere, but the smaller the space and the less traffic and ventillation, the easier it is to control. It's possible to ignore slightly speckled prints for introductory work, but it's also true that it's my pet peeve and most constant battle for more serious work. The question is how far and how able are you willing to go to combat it? Ionizers work pretty slick, but start at several hundred dollars. Thorough and regular cleaning helps, but a vacuum cleaner can stir up more print-spotting dust than it eliminates. A damp rag fights this battle better.

A separate room or a box constructed within a room allows the most ready access and best avoids dust problems. Quarter-inch plywood, masonite, or panelling panels on frames of 2x2's which bolt together has worked quite well for me, and one construction survived several moves until I got a place with a small room that I could dedicate to my darkroom. The most notable concession I had to make for my "boxed-in" darkroom is that my very tall enlarger would not fit at a standard counter height, so I had to sit on a stool.

Positioning the enlarger will be an important consideration in allowing access to persons in wheelchairs. The most workable solution is to get it off of a fixed countertop. Besides, it's more portable that way. In the home most bathrooms will not accommodate an enlarger as a permanent fixture, and in temporary setups it's nice to have something that rolls or can at least be set out of the way and off the floor (a dust hangout).

An enlarger could be put on a drafting table with c-clamps so the entire top of the table could be tilted somewhat to make it more accessible. Then drop the table down low enough that the wheelchair arms will just go underneath it. Possibly have a paper safe taped right on the side of the table to hold the paper, and put some sort of rubberized or plastic pad under the easel to help stabilize it.

Another option, using a 4x4 sheet of ⅝" or ¼" exterior plywood, is to do a semi-circular cutout on one side and round with an arc the outside edges, like a big kidney bean. Do cutouts for trays in a semi-circular arrangement, from the center sweeping over to the right, and put an enlarger or a contact-printing box on the left. You can set this entire unit down on the floor on stacking plastic crate-type boxes. The boxes can have a couple bricks put in them for weight. The idea is that this table can be put at the appropriate height so that a person

Friend assists Danny with operation of a timer.

that does not need to stay in a wheelchair could just kneel on the floor and within arm's reach do everthing that was needed for printing. Or for a person who has to work in a wheelchair, it could be set on a tabletop at whatever height is necessary. The outside edges could be built up, then, with a piece of lumber to stabilize it, perhaps a 1x4 or 2x4. The plywood top could have legs on it for whatever height it's needed, and could be water-sealed with a couple coats of polyurethane varnish. The same idea can be used with the trays. Developing trays could be dropped into cutouts in the plywood top.

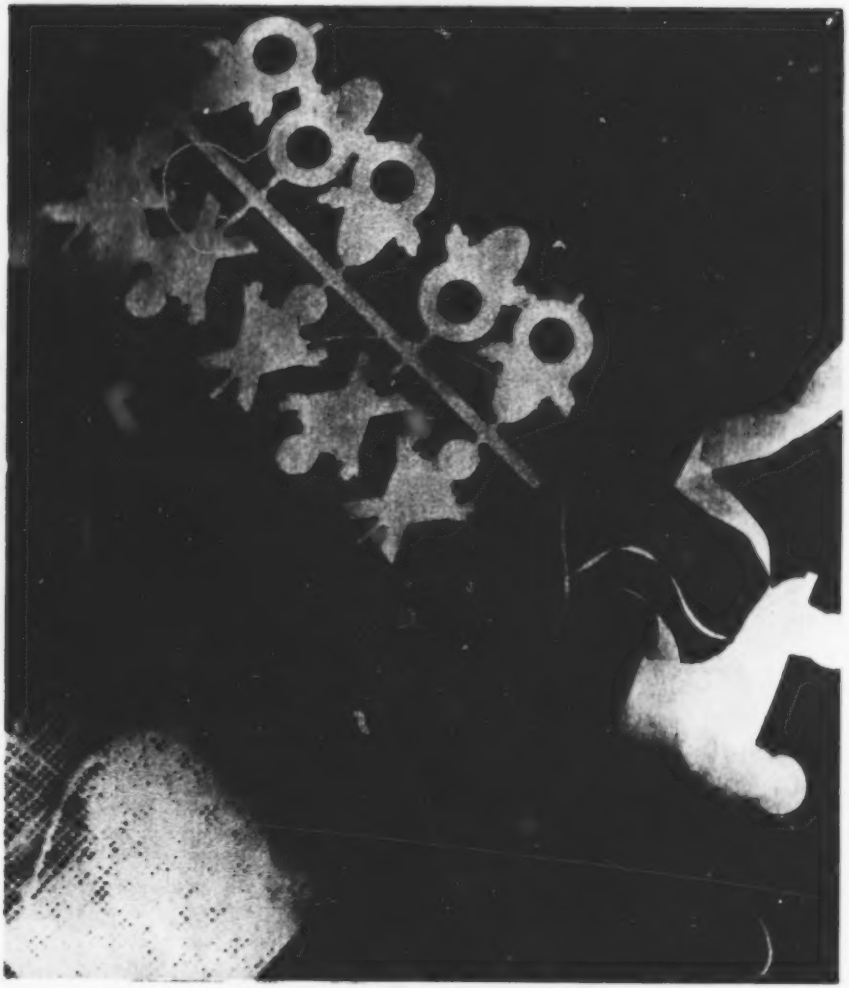
Tray-processing of photographic paper also needs a light-tight area. Rooms with plumbing -- bathrooms, kitchens, art rooms, or whatever certainly are more convenient, but plumbing is not an absolute necessity. The final prints do need to be rinsed in running water or be put through several changes of water, but this water rinse does not require darkness. The prints can be developed and fixed in the portable darkroom and then be carried (watch out for drips) to a sink. Or you can instead use a portable water holding tank and waste pail.

A six-foot length of formica counter with cutouts put right into the countertop could hold four trays, the trays themselves being standard photographic trays and a plastic dish pan set into the end for a wash tray. Masking or duct tape used around the edge of the trays could provide a seal. Some folding 2x4 lumber legs could support it with some hinges and a stabilizing crossbar, but so a wheelchair can get under the whole device.

A large sized drafting table could have holes cut into the surface, have trays dropped right into the top of it, and be converted into a personal one wheelchair-sized darkroom. A possibility might be on that particular table use c-clamps and plywood or masonite to build an extension for a little additional space. This extension could also provide a kind of a drip rail if it included wooden trim such as quarter-round along the edges of the extension top. Clear caulk would seal the seam between the top and the trim.

Trays and containers are the easiest area in which to save some money. Soft plastics such as most dish pans will eventually become stained by the photographic chemicals, but they're cheap.

If the adventure into photography includes work in a photographic darkroom, be it a school or professional lab or in an improvised lab in a home setting, it is important that the photographer or person working with a young photographer be aware of certain health



Photogram by Danny, age 14. (CP, non-verbal and quadriplegic)

and safety considerations. While most photographic products in common use are perfectly safe and harmless when used as directed, some persons who have exceptional education needs may have a combination of physical conditions that make them particularly susceptible and much more sensitive than the average person to certain chemicals. A person with asthma, certain allergies, or extra-sensitive skin, should certainly be protected from the fine dust or chemical particles that may be stirred up as dry chemicals are mixed with water for use in the photo lab. Additionally, most of the chemicals, while harmless in con-

tact with the hands, could indeed cause problems if accidentally taken internally while being splashed into the mouth or eyes. Photographic stop baths for example, are a mild acetic acid solution (vinegar) and would be an eye irritant. I would suggest that a person with limited fine or gross motor coordination (spastic or athetoid CP would be good examples) use certain appropriate body protection measures when working in a darkroom. A protective apron or smock would protect against accidental spills. A pair of inexpensive plastic wrap-around type safety glasses will protect the eyes. Further information can be found in the darkroom chapter of this book.

For persons involved in black and white or color darkroom photography, I strongly recommend they become familiar with a portion of a paper available through the Center for Hazards, which has a fine section that addresses particular sensitivities to certain materials for persons who have selected disabilities. Two additional publications which should be in the library of any photography teacher, and certainly would be worthwhile reading, should be available through the local public library,high school or college university library through an interloan program. They are "Overexposure" and "Safe Practices." A brief description of these publications may be found in the bibliography section and the appendix to this guide.

In many ways the darkroom half of photography is more difficult or effort-consuming than the shutter-snapping end. But the decision to get involved in the darkroom is yours to make. If you want to be persuaded further, there are a great variety of books by master photographers and authors, perhaps beginning with Ansel Adams. If you want to learn more about the darkroom procedures, there are also a great variety of books in most library card catalogs or even still on some retail bookshelves. There is even a variety of books on building a darkroom on a budget, although most of them I have seen deal primarily with permanent installations.

But if you have avoided the darkroom mostly on the grounds of *access*, let's review some arguments which have been posed and answered indirectly throughout this text.

It's easier just to skip the darkroom part. — True, it's easier, but not better. The darkroom is half the photographic process, and to forego it is to give up half your control over the print. Gone are dodging, burning, and all of the other corrective controls. Not to mention all the artistic possibilities of the darkroom.

I just want to learn the camera. — Film and prints are not magic. Jumping from shutter-snapping to finished prints takes a great leap of logic. An introduction to the darkroom at least illustrates some of the principles of light, exposure, and contrast.

We don't have a darkroom. — You may have trouble getting permission to use someone else's darkroom, but a traditional darkroom is not necessary. Try for a darkened room on a temporary basis and the possibilities are nearly endless. The modifications are quick and inexpensive.

There's too much chemical confusion. — For introductory purposes the paper needs only two chemicals, devel-

oper and fixer. Any two from the same manufacturer will work fine with their attached instructions.

The enlarger's not accessible. — Get it off the counter. Put it on wheels. Put it on an adjustable drafting table. Put it on the floor. The first step is positive thinking.

We can't afford an enlarger yet. — Consider other ways to generate light to the paper. There are photograms made from an ordinary utility flood light with a small bulb ($5 or less total). There are pinhole and box camera constructions using paper instead of film. There is contact printing of negatives. You can even contact print from paper negatives and photograms. All will begin to teach the photographic principles of light and open up artistic possibilities.

It all costs too much in a classroom situation. — The enlarger aside, the rest is cheap. Many things may already be available. And approached from ground-zero view, it's not that different from investing in paint, brushes, and paper.

The chemicals are dangerous. — No. As with many supplies in the art room, the key is the phrase "when used as directed." The common photographic chemicals are safe and harmless, but supervision is required for their proper use.

Jed mounts his photo for an exhibition.

The darkroom should be part of any serious introduction to photography. And certainly in those situations where it is part of the mainstream educational curriculum, there is no good reason — either physical or economical — why access should be denied to those persons with exceptional educational needs.

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Chapter 9

Vera Scalingi is founder and director of Photo Projects, a New York City based consulting firm. She designs and conducts phototherapy and videotherapy training workshops for clinicians and special educators. Ms. Scalingi is currently on the faculty of both Hofstra and Long Island Universities, consults to Rehabilitaiton Through Photography, Inc., and collaborates with Polaroid Corporation in the development of Project SNAP. She holds a master's degree in Art Therapy from Pratt Institute in New York City.

Special Applications of Photography: Skills Development

by Vera Scalingi

This article addresses the application of photography as a therapeutic and learning tool. It focuses on the use of this medium for the acquisition of independent living skills, the development of perceptual and cognitive abilities and the enhancement of self-awareness, and self-expression, and self-esteem.

There are numerous reasons why photography is a powerful catalyst when integrated into the rehabilitation and education of special needs persons.

Photography is a mainstreaming activity. Billions of photographs are taken each year by millions of people. Current state of the art automated equipment is affordable and simple to use, enabling successful mastery of a highly respected and popular skill. This competence coupled with acknowledgement from others can help to build a healthy sense of self-esteem.

A photograph documents reality, with exquisite detail. In creating a record of what's so, it provides a convincing reality check.

Photography is a bridge between one's internal and external life; it provides clients with a means for self-expression and clinicians with a window through which to understand an individual's unique perceptions.

Photography not only capitalizes upon one's visual abilities, but also helps to create a partnership between right brain and left brain functioning.

It is personal. Individuals can take photographs of objects, people and places that have personal relevance for them. Integrating these photographs into the rehabilitation experience enables one to create personalized learning tools.

Photography is active. Individuals can seek out and record information, organize it and shape the learning process to meet their individual needs.

It is a multisensory approach. Making a photograph involves the kinesthetic as well as the visual sense. Activities which involve various sensory channels generally provide a more effective learning experience.

Photography is fun. Learning occurs more readily when there is an element of enjoyment accompanying the rehabilitation experience.

Photography produces a tangible and versatile end product. Photographs can be duplicated, passed around, sent through the mail, carried in wallets, collaged, colored upon, cut-up, hung-up and pasted down!

Keeping these points in mind, let's consider specific ways in which photography can be applied to enhance skills development.

Recognition and identification of one's own physical image as distinct from, yet sharing similarities with, other's are basic skills. Photograph an individual from front and back, and document one's various body parts, feet, hands, etc. Using these pictures in exercise which require the naming and locating of physical aspects of one's self can enhance self identification, body localization, and body abstraction.

Photographs can be used as a means to explore and orient oneself in three dimensional. Photograph objects which illustrate relationships such as below/above, in front/behind, to the right/left, and use them as a reference.

They can help to enhance one's understanding of time. For instance, illustrate "Daily Activity Schedules" with photographs and times of the various groups. This serves as a visual reminder of the activities that are taking place, as well as when they are occurring.

Methods for integrating photography into perceptual skills development seem endless; for example, analyze photographs for visual contact, differentiate objects in foreground from background, match pictures of objects with real objects, and photograph objects that have basic shapes. Photograph and sequence the various steps of an activity; use this pictorial record to enhance the attainment of skills such as progressive gait training, cooking, personal cleanliness, and travel training just to name a few. Copy a photograph onto a larger sheet of paper; this provides practice in eye-hand coordination as well as color and shape recognition.

Pictures play an important role in language development. They can be used to enhance both receptive and expressive language abilities. For instance, take photographs of objects and use them as flash cards to develop vocabulary and facilitate articulation of letter sounds.

Photographs can be used to enhance one's understanding of the parts of speech and sentence structure. They can provide a stimulus for both discussion and writing.

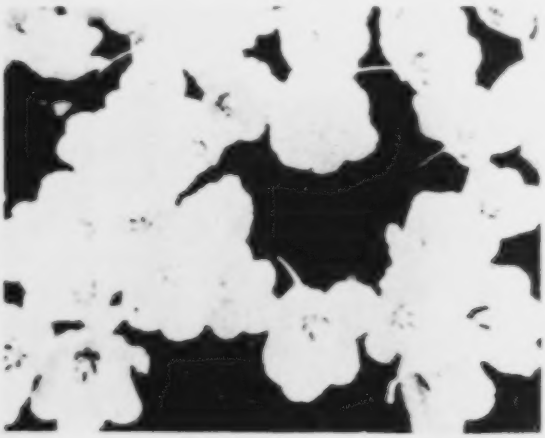
Photographs can facilitate concept attainment. They provide bits of information upon which to build understanding from simple concrete logic to complex forms of thinking; for example, they can help one learn how to respond appropriately when approaching a stop sign. Take photographs to illustrate and discuss all aspects for this situation from the simple perception of the color and shape of the stop sign to more complex issues of personal safety and traffic flow patterns.

Photography is a natural partner of social "beingness." It provides opportunities for social contact with people and the environment and an impetus to venture out into the world and engage others. Photographing a series of images which represent an aspect of oneself can be a healthy way to express feelings, imagination, and creativity. Photographs of one's own image can provide an excellent opportunity for self confrontation which can lead to self aware-

ness and realistic goal setting. Pictures can document our participation in life; snapshots of friends, family, and places can provide one with a sense of belonging. As they bulge within photo albums and burst from shoe boxes, they call out to us as a reminder that we have participated in life and shared in the universal language of photography.

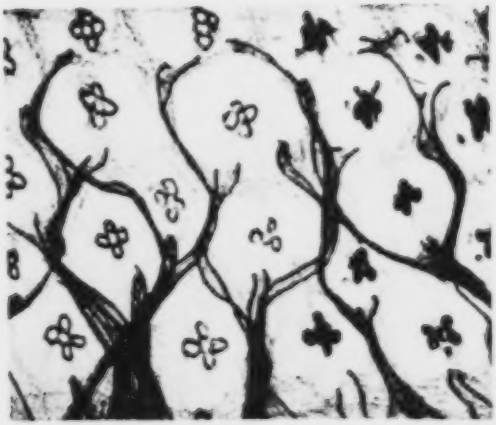
Hopefully the suggestions in this article will spark an interest in this modality and trigger your imagination. For more information on professional training workshops demonstrating the special applications of photography and to share insights and new information, write to the author at Photo Projects, 40 West 56 Street, New York, NY 10019.

(Reprinted with permission from A POSITIVE APPROACH magazine vol. 3, no. 5, 1988).



"Use a photography as a stimulus for a drawing"

Drawing by Paul Campbell



Appendix A

— List of Resources —

A Facilitator Guide. Outdoor Education for the Handicapped

Kentucky Univ., Lexington
Mar. 1983 271p.; Office of Special Education and Rehabilitative Services (ED), Washington, D.C., Div. of Innovation and Development

The concept and purpose of this facilitator guide is to provide the three facilitator groups of educators, park and resource management personnel, and parents of handicapped children with information on how to cooperatively design and implement an outdoor education program for handicapped students. Chapter 6 (contributed by Katie Ahern McGuinnes and Terry D'Eugenio) focuses on accessibility, offering design guidelines and techniques for considering user needs (behavioral mapping, photography, role playing, bubble diagrams, sense scales, and model-making).

A Positive Approach

A magazine for the "physically challenged," which includes a column on photography. For example, the May/June 1987 column by Flo Fix discusses shutter release modifications, automated cameras, and camera support devices.

A Positive Approach Magazine
1600 Malone Street
Municipal Airport
Millville, NJ 08332
(609) 327-4040

The Able Disabled — Some Use Insight More Than Sight

1985
F. Fox
Montage
Eastman Kodak Company
Educational Markets Services
343 State Street
Rochester, NY 14650

A Resource Guide in the Visual Arts for Youth with Exceptional Educational Needs

A book which provides a comprehensive listing of selected current programs, audio-visual materials, and printed resources. All materials have been verified wherever possible and include availability information, addresses, arts categories, listing of Exceptional Educational Needs (EEN) discussed, and an annotated description. Printed materials are provided in alpahbetical order and also in EEN cross-referenced listings.

1988
Charles Peterson, Project Director
Young Artist Workshops
St. Norbert College
De Pere, WI 54115-2099

An Arts Activities Approach: Counseling the Gifted, Creative and Talented

The visual arts can be employed as a counseling vehicle for gifted, creative, and talented students. Color, image proportion, subject matter, and texture in student art facilitate assessment and guidance. Craft, drawing, painting, photography, printing, design, and sculpture activities which could help in this process briefly described.

Adele Kenny
Gifted Child Today
v10, n3; 1987; pp. 33-37
Box 6448
Mobile, AL 36660

Art Activities for the Handicapped

Laurie, Frank, Comp.
Illinois State Board of Education, Springfield. 1980 207 p.

Intended for professionals interested in incorporating arts activities into the educational programs for disabled students. More than 100 activities cover the areas of art, creative dramatics, creative movement, dance, music, photography, and puppetry. Outlined for each activity objectives, needed materials, procedures, appropriate age level, and handicap population.

Center for Occupational Hazards

Source for documents including "Children's Art Supplies Can Be Toxic." An excellent teacher resource that also addresses "high risk children" (disabled) and applies to adults as well. There are many implications for darkroom photography.

5 Beekman Street
New York, NY 10038

The Darkroom Builder's Handbook

How to set up a fully operational black and white darkroom in the space of a closet without investing a bundle. Discusses concerns of water, space, light, and ventilation. Total cost of such a darkroom, if outfitted with good, inexpensive beginner's equipment, could be kept under $150, excluding the cost of chemicals.

Carl Hausman
TAB Books

Explorations of Environment, Reality and Art: One Blind Man's Photography

1985
Journal of Visual Impairment and Blindness
pp. 259-61

Jeff Famam

A photographer who is quadriplegic and often gives speeches to professional groups. His topic is "Issues of Adaptive Photography: A Functional Approach."

3035 Humbolt Avenue S.
Minneapolis, MN 55408

Instant Pictures Help Mentally Handicapped Develop Independent Living Skills

While it is difficult to provide mentally retarded students with concrete learning opportunities solely by word of mouth or through print, the Rochester School of the Holy Childhood has found the camera and instant photography extremely useful in providing a creative and flexible opportunity for assessing and developing an individualized program. For example, pictures are used to show students the sequential steps involved in the preparation of a meal — from washing hands to cleaning utensils.

1980
K. Finnegan and J. Decker
Montage
Eastman Kodak Company
Educational Markets Services
343 State Street
Rochester, NY 14650

Instant Projects

A Handbook of Demonstrations and Assignments for Photography Classes

Thorough documentation of instant photography technical information (including 35mm and 4x5), and dozens of assignments and demonstrations for educators. Classroom tested projects covering a wide variety of skill and interest levels. Not specifically for special populations, but an extensive source of ideas for educators.

Robert Baker and Barbara London
Edited by Henry Horenstein
Polaroid Corporation
784 Memorial Drive
Cambridge, MA 02139-4688

The Learning Disabled as a Creative Individual

Ross, Samuel B., Jr.
Green Chimneys School, Brewster, NY Feb. 1982 8 p.

To carry out a good visual literacy program it is necessary to have many kinds of arts and crafts materials, a supply of newspapers and magazines in a learning resource center, cameras and darkroom equipment, typewriters, and tape recorders.

Let Your Camera Do the Seeing:

The World's First Photography Manual for the Legally Blind

Born legally blind, George Covington uses photography to see what he otherwise could not. The manual discusses photography's ability to reduce confusing shapes and distances to two dimensions and only a few shades; photography also allows a visually impaired individual to see both detail and perspective at the same time. Chapters include camera functions, printing processes, possible problems and subject matter.

George Covington
Edited by Anne Ford
Published by George Covington
2130 P Street, N.W. #906
Washington, DC 20037

The Modification of Educational Equipment and Curriculum for Maximum Utilization by Physically Disabled Persons; Curriculum and Instructional Techniques for Physically Disabled Students. Human Resources Study Number 12

Nemarich, Samuel P.; Vellemen, Ruth A.
Human Resources Center, Albertson, NY 1969 86p.

Designed to suggest solutions to problems of curricula and instructional techniques for physically disabled children, the text considers the nature of the child and discusses aspects of curriculum and methods. Photography is discussed. A summary and implications for future curricular changes are presented.

Overexposure: Health Hazards in Photography

An essential reference for any photographer or teacher of photography. Very comprehensive treatment of all types of hazards and special discussion of hazards related to experimental/non-silver photo processes. A real eye-opener for the most experienced photographer as well as the novice.

1983
Susan Shaw
The Friends of Photography
P.O. Box 500
Carmel, CA 93921

Photo Explorations Kit

A set of 102 interesting and challenging assignments that will help you motivate your students to master the concepts, tools, and techniques of photography.

Jack Biedermann
Eastman Kodak Company
Dept. 841
Rochester, NY 14650

Photography: Simple Truths

A Workbook for Teachers and Students

A guide for teachers in setting up a photo program. Simple explanations of technical processes. Outlines assignments that are intended to stimulate cretivity. Lists materials and resources.

Philip Krejcarek
Carroll College
Waukesha, Wisconsin
(414) 547-9691

Recognizing Special Talents in Learning Disabled Students

Baum, Susan; Kirschenbaum, Robert
Teaching Exceptional Children, v16, n2 p92-98 Win 1984

Approaches to working with learning disabled students who are also gifted, talented, or creative are illustrated in the example of a secondary student with special abilities in photography. Several of his photographs and accompanying narratives are included.

Safe Practice in the Arts & Crafts: A Studio Guide

A comprehensive guide for the studio artist and art teacher in college studios but applies as well to the typical high school art program. Discusses biological, chemical, physical and ergonomic stressors, body defenses, OSHA recommendations and provides lists of poison control centers, sources of protective respiratory devices, and extensive lists of specific references.

A studio guide section devotes several pages to specific hazards in each of more than a dozen specific studio areas including photography

1978
Published by the College Art Association of America

SNAP:

Special Needs Adapted Photography

Project documentation and support services. Polaroid Sun 660 autofocus specially modified cameras with tread switch or pistol grip. Activity manual for professionals working with special populations. Co-sponsor of workshops and in-services.

Susan L. Gagnon
Polaroid Customer Services
784 Memorial Drive
Cambridge, MA 02139-4688
800-225-1384

SNAP Activities Manual

A workbook of instant photography activities for special populations. Sample plans by professionals for professionals. Manual is currently in a testing and research phase. Vera Scalingi, a freelance photographer, is a consultant to Polaroid Customer Service and is the founder and director of Photo Projects, a consulting firm which assists health care agencies with the development of client-centered photography and video programs for rehabilitation, recreation, and education.

Vera Scalingi
Editor, SNAP Manual
40 W. 56th Street
New York, NY 10019

Star Power: Providing for the Gifted and Talented. Gifted/Talented Students Among the Disabled (handicapped).

Alexander, Nancy
Education Service Center Region 13, Austin, Texas 1977 51p.

The document presents Module 7, gifted/talented students among the disabled, of the Star Power modules developed for school personnel who have an interest in or a need to explore the area of gifted and talented education. The goals of this module are to discover positive contributions which gifted/talented students who are disabled make and to encourage development of potential and of positive self concepts while these students explore areas of high potential. Sections include activities to develop self concept, to motivate with art, photography, drama, filmmaking, written communication, and to encourage kinesthetic and auditory learners; and post assessment procedures.

Stimulating and Teaching Thinking through the Integration of Left and Right Hemispheric Brain Activity

Nash, Paul 20 Aug 1984 29p.
Paper presented at the Conference on Thinking (Cambridge, MA, August 19-23, 1984).

A project investigated the use of instant photography for creating synthesis between image and language, between pictures and words, and thus stimulating the right-brain learning of students. The project was rated effective in motivating students to learn, teaching visual/spatial awareness, increasing the relevance of classroom learning, and teaching basic skills. Formal evaluation of its effect on creative writing demonstrated that Ss using instant cameras, film, and a curriculum guide made significantly greater improvements in their writing ability than did control Ss. Additional benefits were noted in self esteem (especially in low achievers and quiet or shy children), enhanced communication, increased responsibility, more collaboration in classrooms, heightened senses of autonomy and authority, improved student-teacher relations, enhanced writing and visualization skills, and transfer to other domains of thinking.

Taking Pictures

Accent on Living Magazine

Information about holding a camera while taking pictures from a wheelchair. Pictures and describes homemade devices and those available from camera stores.

P.O. Box 700
Bloomington, IL 61702
Winter, 1986 Issue

Teaching Handicapped Students Vocational Education. A resource Handbook for K-12 Teachers

Palomaki, Mary Jane, Ed.
National Education Association, Washington, D.C. 1981 96p.

"Tactual print approach" used with blind students in industrial arts shop; (11) teaching strategies for blind students in photography.

The Toughest Assignment

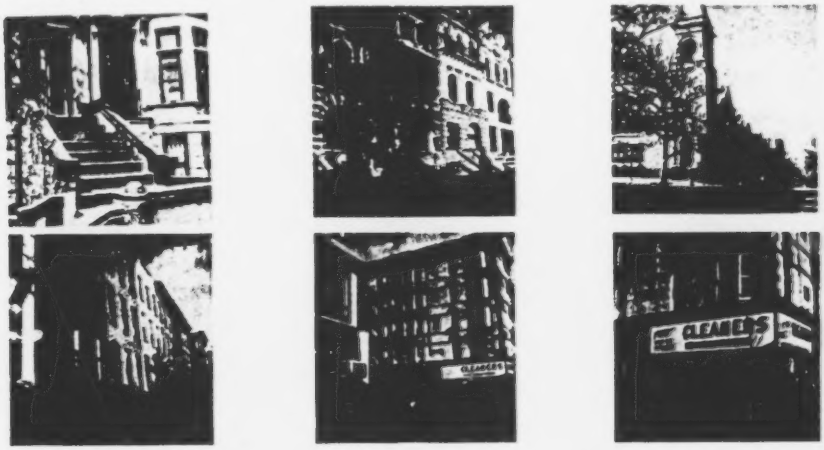
"Snapshots" summary describes accomplishments of blind photography student Beth Hatch, 20, in Journalism 221 class at St. Michael's College, Burlington, VT. Braille-like dots were applied to the shutter speed, aperature, and focusing rings. "It's lot like writing," she explained. "You don't write for yourself. You write to communicate your perspective to others. It's the same with my pictures. It doesn't bother me that I can't see them," the article reports.

Popular Photography
November 1988; p. 45

PHOTO MAPS: FROM HERE TO THERE

DESCRIPTION

Photographs of landmarks and views along a specific route can assist an individual in traveling.



GOALS & SKILLS

Develop independent living skills
Improve visual perception
Improve reasoning abilities
Improve ability to follow directions
Reinforce memory, sequencing skills, and spatial orientation

PREPARATION

Review use of camera and film. Select and map out the specific route to be photographed with the client, eg. from home to the cleaners. Familiarize the client with the route by actually traversing it; point out the landmarks and views to be photographed.

ACTIVITY

Client takes photographs of each landmark along the route. The characteristics of each one should be pointed out as it is being photographed. For instance, ask the client to describe the color, size, and shape of buildings and to state the position of one building in relation to the others. Also note distinguishing features such as, fruits outside of a fruit stand, street crossings, and changes in direction. The photo images are then organized by the client into the appropriate sequence for "Going There" and are placed in a photo travel book for use as a reference guide. Use the same activity plan for the "Return Trip".

RELATED ACTIVITIES

See: Neighborhood Photobiography
Photo Recipe Book
Photo Phone Book
Photo Reminder Book

(Reprinted from SNAP Activities Manual)

Appendix B

— Sources of Adaptive Equipment —

Cameras and Triggering Mechanisms

Kodak Model K10 or K12 VR 35mm Camera

Model K10 is a durable, economical camera with automatic focus, but does require manual film handling.

Model K12 is a "one-touch" auto-focus, auto-flash model that requires a minimum of film handling. It automatically threads film to advance to frame one, auto-advances after each shot, and rewinds automatically at the end of the roll.

See Appendix C for sample custom modifications for triggering mechanism and camera support.

Eastman Kodak Company
343 State Street
Rochester, NY 14650

Polaroid Sun 660 Camera (modified models)

Polaroid Sun 660 autofocus instant cameras specially modified with either pressure sensitive "treadle" switch or pistol grip. The foot treadle may be placed on the child's lap, then triggered by the hand, wrist, or arm. Or, it could be taped to a wheelchair frame and be activated by the head, knee, or foot.

Polaroid Customer Services (SNAP)
784 Memorial Drive
Cambridge, MA 02139-4688

Access to Recreation: Adaptive Recreation Equipment for the Physically Challenged

Innovative and interesting adaptive recreation equipment at competitive prices. Catalog states guaranteed satisfaction. Includes all-terrain vehicles, universal support arms (for cameras, binoculars, etc.), low-cost camera holder, recreation-adapted wheelchairs, amputee photographer pods, pointers, clamps and computer accessorites.

Donald A. Krebs, President
2509 East Thousand Oaks Blvd., Suite 430
Thousand Oaks, CA 91362
(805) 498-7535

BEST COPY AVAILABLE

Camera Support Systems

Bodypod:
Bodypod to stabilize camera. Designed for use by the person with limited mobility. Facilitates one-handed operation. Keeps camera aligned with the eye. Available in three sizes, and configured for right- or left-handed use. Wheelchair mounted model also available.

Bodypod
1431 Main Street
Gresham, OR 97030
(503) 665-4958

Bogen Video Camera Support:
Lightweight (2.6 lbs.) boyd carrier

Bogen Photo Corp.
17-20 Willow St.
Fair Lawn, NJ 07410

The Magic Arm:
Fully articulated arm with camera mounting bracket fits anywhere on wheelchair with tubular frame. 90 degree pivotable and 360 degree rotatable ends and an elbow that rotates 360 degrees. A firm turning movement of the control handle (located at the elbow joint) locks all three joints firmly into position.

Bogen Photo Corp.
17-20 Willow Street
P.O. Box 712
Fair Lawn, NJ 07410-0712
(201) 794-6500

Bogen Video Camera Supply. A lightweight, 2½-lb. body carrier for video cameras. $136 list. Bogen Photo Corp.

The Suction Pad:
For reliable mounting to all slippery surfaces like glass, metal, enamels, plastics, etc. May be combined with the Cullmann Ball and Socket Head, center column of the tripod, or even with the complete tripod to give additional support when used on a car or a table.

GMI Photographic Inc.
1776 New Highway
Farmingdale, NY 11735
(516) 752-0066

The Universal Support Arm:
Wheelchair mounted support arm holds camera securely and steadily. It telescopes and can swivel at three points, thus providing a flexible range of angles and viewpoints. A specially designed clamp affixes the arm to a wheelchair's tubular frame.

Maddak, Inc.
Pequannock, NJ 07440

Wheelchair Camera Holder:
Wheelchair camera holder; oak frame with elbow rests is attached to the wheelchair frame with an aluminum attachment that allows for some adjustment in chair widths.

George H. Snyder
5809 N.E. 21 Avenue
Ft. Lauderdale, FL 33308

Wheelchair Camera Support:
Wheelchair camera support with clamp, locking arm, and camera platform. The clamp can be fastened to either a horizontal or vertical part of the wheelchair arm on either the right or left side. Adjustable tension to support the weight of the camera yet allow smooth movement/adjustment. Collapses easily for traveling.

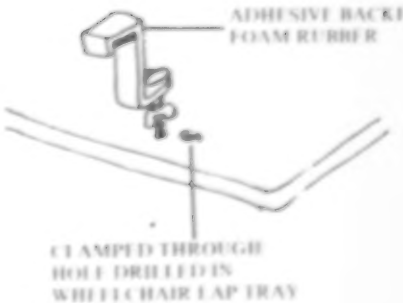
C.F. Industrial Photographic Equipment Inc.
2394 Grand Ave.
Baldwin, NY 11510
(516) 868-1313

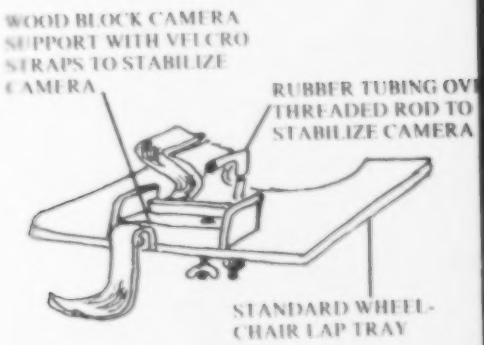
Wheelchair Camera Support:
Wheelchair camera support for photographing and telescope use. Provides tripod-like stability in an easily-mounted attachment. Stainless steel. Mounts on any straight up and down armrest (desk arms may have to be reversed). Consists of head, post, and base support. Strength-tested with large format cameras and telephoto lenses. Two models: regular and lever-adapted for limited hand function.

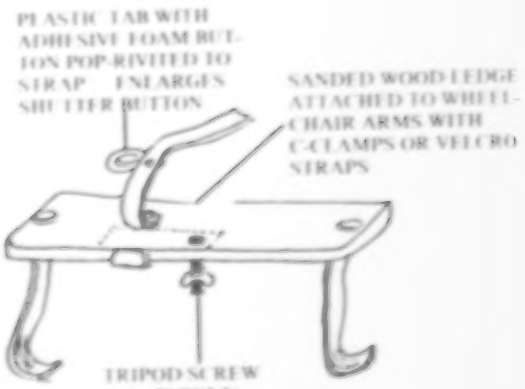
Gary Marine Photography
Waller Road
Route 3, Box 460
Delmar, MD 21875

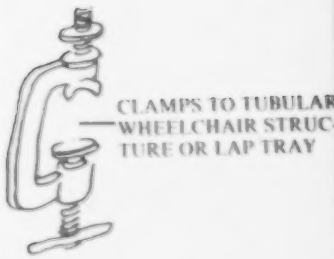
Appendix C

— Sample Modifications —

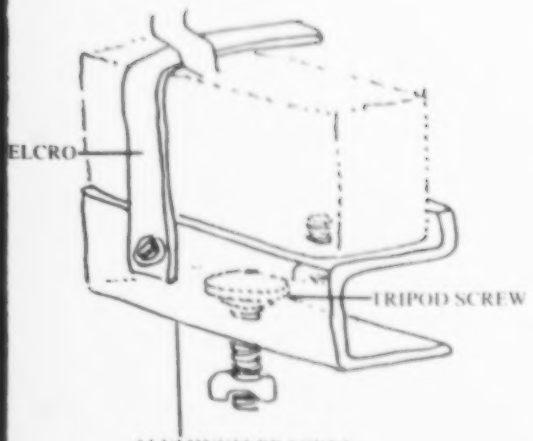


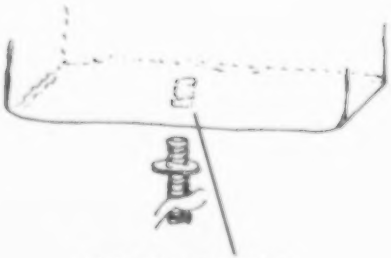




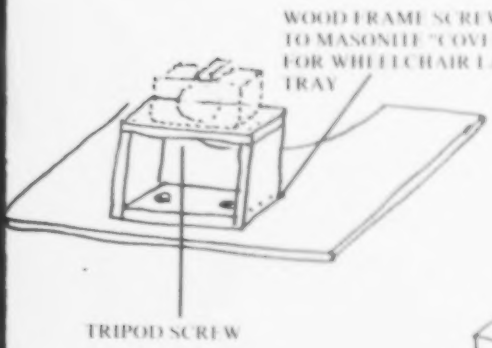


STANDARD 3-4" C-CLAMP
WITH ¼" x 20 THREAD
STOVE BOLT AND
WASHER BRAZED ON AS
TRIPOD SCREW





TOO LONG A SCREW FORCED INTO CAMERA BOTTOM COULD CAUSE SERIOUS DAMAGE TO CAMERA



TRIPOD SCREW HOLE FOR SECURING CAMERA
WOOD SHELF WITH WOOD OR ALUMINUM CABINET DOOR TRACK FITTING OVER EDGE OF OPEN CAR WINDOW

BE CERTAIN ENGINE IS **NOT RUNNING** TO ELIMINATE VIBRATION